The Iron Age

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A Review of the Hardware, Iron and Metal Trades.

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Published every Thursday Morning by DAVID WILLIAMS, No. 83 Reade Street, New York. Entered at the Post Office, New York, as Second-Class Matter.

Vol. XXXVI: No. 10. *New York, Thursday, September 3, 1885.* *$4.50 a Year, Including Postage. Single Copies, Ten Cents.*

Sliding Scales in the English Iron Trade.

The arrangement of a new sliding scale in the manufactured-iron trade of the North of England has, it seems, been a matter of great difficulty. Its desirability has been urged on the trade for successive months by arbitrators and others, and there has been a general, but not quite universal, agreement in the view that it is needful in the interest of the trade. The difficulty has arisen on what seems at first sight a small matter. Our readers, says *Engineering*, know that "shillings for pounds" was an old maxim in relation to wages in the manufactured-iron trade; and that later it has been altered to "shillings for pounds and a shilling over." That is, at first every pound received as the price of iron carried a shilling in wage to the puddler; but later the shillings thus received had an additional one added. Thus, under the older standard, iron at £7 per ton would give 7/ per ton as the wage of the puddler (in addition, of course, to any prize money or other extras), while under the latter rule iron at £7 per ton would give 8/ per ton wage, also in addition to any extras. But in several recent settlements in the North of England a tendency has been shown to increase that addition to the shillings. There have been reasons for this; the iron has, on the whole, tended downward in price; and at times there has been a distinct movement toward the inclusion of the more lower-priced classes of iron, and thus less in proportion of the higher. In the contemplation of wages settlements these things have been taken into account, and it is in part due to this that the overplus—the sum added above the shillings—has been increasing. The chief part of the difference now is as to the amount of that sum to be added—whether after the "shillings to pound" there is to be added 1/6, or 2/, or some intermediate sum. And it is to this chiefly that the delay in the formation of a new sliding scale is attributable. When it is remembered that the difference between the extreme points is sixpence per ton, and that that amount would be repeated some hundreds of thousands of times in a year, the importance of the difference will be appreciated, while the mere statement of detail does not allow it to be so.

There is ground for the contention that the sum to be added should be increased, because there has been, when periods of some duration are considered, a distinct downward tendency in the price of manufactured iron—the highest price in one decade is usually less than the highest in its predecessor, and so with the lowest price. If there is the same comparative work in the manufacture of the iron, the proportion of wage in the earliest period would scarcely be a fair one in the latter. If all the iron made were made into plates, the puddler might fairly take a slightly less wage per ton from the realized price than if a large part of the production were angles, which sell for less. In the North of England, in the beginning of 1873, only a fraction more than 7 per cent. of the total production of manufactured iron by the associated makers was in the form of angles; but in the beginning of 1877 above 18 per cent. of the total make took that form. At the latter period plates were the largest proportion of the production, and these plates sold at 10/6 per ton on the average more than the angles. Hence, apart from other considerations, there is some reason for the alteration of the basis. If we now go a step further, we may show what the proportion of the different classes of iron sold in the North of England was and is. The following table shows this for middle periods in each of the years named:

	1874.	1885.
Rails	44.41	0.96
Plates	31.72	59.58
Angles	15.97	22.44
Bars	7.90	17.02
Total	100.00	100.00

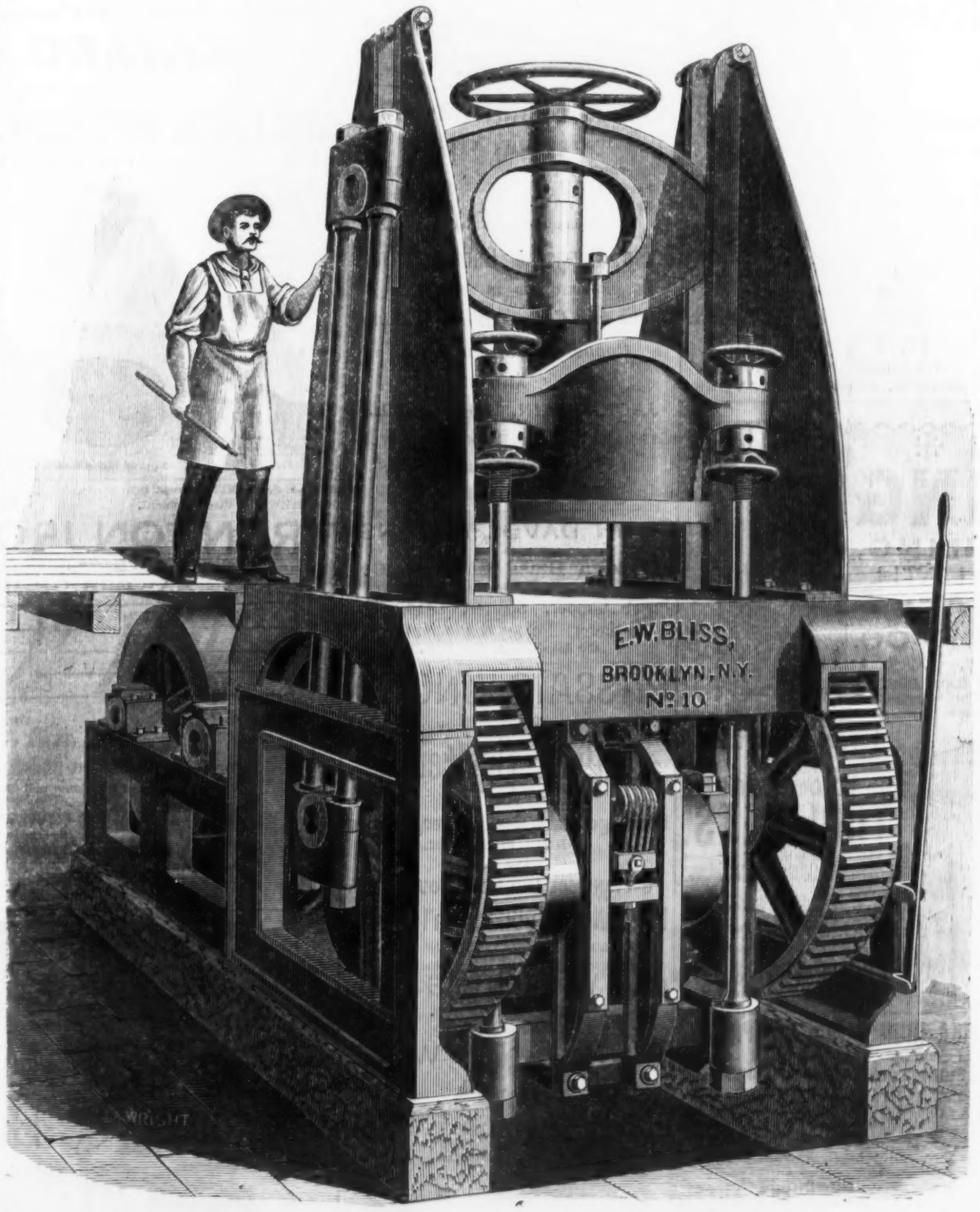
This is more than a mere statistical difference; it is one which affects the proportionate price, and therefore may fairly be held to affect the proportion of that price, which labor receives under a sliding scale, and it is this factor which is now influencing the conduct and the contentions of the two parties to the projected scale, though we believe that it is too fully considered—that is, at greater length than it needs—when the other factors are taken into account. For, when we remember that the addition has been rather considerably increased, and that there is now an enlarging competition with the products of steel plates and angles, we must acknowledge that with the low prices there is a very much lessened ability on the part of the employers in the manufactured-iron trade to pay an increased proportion for labor, and there is also less desirability to make that payment. In the truest interest of the workmen in the iron trade, it is not needful nor desirable that the cost of iron should be maintained more than is essential, because the advance of the steel age is thereby promoted with greater rapidity than it would otherwise, and thus there is a lessened demand for labor in the iron mills. To grasp at the shadow while the substance is in danger is proverbially unwise, and hence it follows that the straining to receive the utmost addition to the sum total may assist in the diminution of the volume of work which flows into the mills now.

The chief point which needs to be urged on both the employers and the workmen now is that the loss to the trade as a whole is greater than the gain to either of the sections. Just now the workmen receive more than the sum proposed to be added on the part of the employers; but this is because there has been no reduction since the arbitration of last year, and because the rate of wages then determined on rules, while the selling price of the iron has declined, and somewhat seriously, in the interval. Unless a scale is agreed upon, some reduction of wages will be found to be imperative, or there will be a further determination of orders for shipbuilding material to the steel mills. It is in the highest degree needful that there should be a settlement of the basis of the rate of wages, and the continuation of the present method of drifting would be dangerous to the best interests of the trade. The mere question of a few pence more or less is small when viewed in contrast with that, and the sooner that this view is accepted on the part of both the contending sides the better. It would be easy to take the average of the sums that have been added over the last six or eight years, or over any given period, and if that were done some settlement might be speedily arrived at of a question which is interfering with the trade in a rather serious manner.

It is surmised that the Bethlehem Iron Company, in order to retrieve losses sustained during general depression of business throughout the country, are making preparations to get their plant in readiness to furnish whatever ordnance is needed by the Government. The preparations are going on irrespective of Government aid. The Bethlehem Iron Company are the first in the field, and when the $13,000,000 appropriated for ordnance is passed by Congress there can be no doubt that the Government can safely and wisely intrust contracts to parties who at their own expense have made preparations to manufacture ordnance. Certain it is that $13,000,000 should not be allowed to fall into the hands of political jobbers and speculators. It is circulated and generally believed that Superintendent John Fritz's trip to Europe has something to do with the preparations mentioned above.—*Bethlehem Times.*

Heavy Drawing Press.

A new drawing press for sheet-metal work has been recently completed by E. W. Bliss, of Brooklyn, N. Y., which in several particulars is a novelty. While embodying many old and well-tried principles, the machine is essentially new in all respects. The various parts are arranged and combined in such a manner as to constitute a neat and compact machine, and one adapted to produce better results than any heretofore made. It embodies the best experience of an establishment that has long been eminent in the production of machinery of the special class to which it belongs. The design of the press, a general view of which is presented in the accompanying illustration, is by Mr. Frank M. Leavitt, superintendent of the works. The first machine built from the pattern, and which has been very recently shipped, was for the St. Louis Stamping Company, St. Louis, Mo. The press is designed to rest on foundations placed considerably below the floor level, as shown in the engraving. The workman who operates it stands in a pit at the front, which is in the foreground of the illustration. By this arrangement the bed of the press is brought even with the floor, thus facilitating the putting in and taking out of dies, and saving much labor in handling the stock to be drawn.



HEAVY DRAWING PRESS FOR SHEET METAL WORK, BUILT BY E. W. BLISS, BROOKLYN, N. Y.

The following description of the press is furnished by the builder: The blank holder is 36 inches in diameter, while the punch is 30 inches diameter. The stroke of the punch is 18 inches, and that of the blank holder 14 inches. Work can be drawn to a depth of 9 inches. The press is back-geared 30 to 1. The bed on which the die rests, and which comes level with the floor, is mounted on two side frames resting upon the foundation walls. These frames also carry the back gearing and driving pulley, which may be covered by the flooring. The pulley is shown in the cut just below the feet of the workman, but without the belt attached. The main shaft, which is 7 inches diameter, is supported in bearings attached to the under side of the bed, so that there is a direct line of strain from the cranks (which are attached to the gears outside the bearings and the cams on the inside) to the die directly overhead, thus preventing the possibility of springing, and relieving the side frames from nearly all strain, except that due to dead weight. The punch is carried by a cross-head made of cast steel working in guides and operated by two pitmans passing down through the bed to the crank-pins, which are 5½ inches diameter by 6 inches long. The adjustment of the punch is obtained by means of a sleeve sliding vertically in the cross head and operated by a large steel screw having a hand-wheel at top for convenience of handling. The sleeve is so arranged that it may be turned round in any position and secured, thus facilitating the setting of oblong dies. The blank-holder or pressure-plate, which is made of extra depth to prevent springing, is drawn down by four 2¼-inch rods passing down through the bed to the lower yoke. The adjustment-nuts on these rods are supplied with hand-wheels to enable them to be rapidly run up or down. The lower yoke to which the blank-holder rods are attached carry two steel rolls 12-inch diameter by 6 inch face, bearing against the main cams, which are also cast steel. A new departure has been made in the arrangement of the bearings for these rolls. Instead of running them loose upon the pins, as is ordinarily done, the pins, which are of tool steel 3-inch diameter, have the rolls shrunk upon them, and they run in journal-boxes supplied with composition lining and having large oil-boxes at top to insure proper lubrication. The blank-holder is raised by a counterweight connected with the lower yoke by four steel-wire ropes passing over suitable sheaves, all of which, as well as the driving gear, is covered by the flooring. The driving-pulley, which weighs 2000 pounds and serves as a balance-wheel, is bushed with composition metal and runs loose on the shaft, to which it is coupled at will by means of a powerful friction clutch of new design. A new device in the shape of a safety brake has been attached, by means of which, when the clutch is thrown out and the press stopped, the driving-shaft is securely locked, thus preventing the possibility of the main shaft running ahead. All journals taking any strain are run in composition metal lining and supplied with large oil-boxes. In designing this press the study has been to give great strength and stiffness, large wearing surfaces, so as to reduce breakage and repair to a minimum, and at the same time to insure facility and ease of handling. The total weight of the press is 40,000 pounds.

The Bange Gun.

Some months ago a trial of armor plates at Spezia demonstrated the superiority of those furnished by the Messrs. Schneider, of Creuzot, over those furnished by several English iron establishments, and the French greatly rejoice thereat, not being accustomed to triumphs in industrial competition. Since then, and to the immense chagrin of Messrs. Armstrong and Krupp, the French have scored another point to their credit, and in the opinion of all unprejudiced military experts Essen has lost that first place which it has deservedly occupied since the adoption of Krupp's cannon by Prussia. Colonel Bange had invented a gun with which he pretended to be able to distance all rivals, yet no one would look at it, and it might have remained in the condition of a humble violet, until another war should bring it into notice, if the influence of the French minister at Belgrade had not brought the Servian minister to consent that the French cannon should be tried and compared with the Krupps and Armstrongs, between which the Servian Artillery Board was hesitating in its choice of a new material for the national army. The results of the trials were prodigious. Three types were presented—a Krupp, of 84 mm.; an Armstrong, of 75 mm., and a Bange, of 80 mm., this last being the model in use in the French horse artillery. Every possible trial was resorted to by the board—long marches, prolonged firing at distances varying between 1000 and 5000 m., rapid firing in order to test the solidity of the breech plates—and in every case the superiority of the French gun was asserted beyond cavil. At 2500 m. the Armstrong was found to be unserviceable; with rapid firing it was found necessary to oil the Krupp after its tenth discharge, while its obdurator was so damaged as to become past mending. On the contrary, the Bange resisted successfully, and was unanimously adopted by the commission, which, although at the last moment an important reduction in price was offered by the German manufacturers, immediately gave an order for 52 batteries to the Cail Foundry, where they are now being prepared.

Two essential points were established during these experiments; in the first place, the accuracy of the fire is greater with the Bange than with the Krupp, although the diameter of the latter is superior, in consequence of the greater initial velocity of its projectile—495 m., against 450 m., per second; and, in the second place, while with Bange's system nine case shot left 756 fragments in the targets placed at 1000 m., the nine improved shrapnels of Krupp's system only gave 475 fragments. Naturally, the Servians adopted Colonel Bange's gun and Colonel Bange's projectiles, only making a slight modification—the substitution of a double-action fuse for a time fuse, following in this the example of the French artillery, whenever the nature of the soil or an enemy's position seems unfavorable to the use of percussion shells. In short, the results obtained have been most satisfactory, and that a new era has begun in cannon-making is evidently acknowledged by Herr Krupp, who is studying at Essen, and in spite of efforts to detract from its value by some foreign newspapers, the system of the French officer in view of some possible improvements upon it. At the Antwerp exhibition there is a monster gun of the Colonel's system, of which a few figures will suffice to give an idea. It weighs 37½ tons, and measures 11 m. 20 cm.—over 40 feet—in length; its exterior diameter is 1.04 m.—about 4 feet 6 inches; its shortest projectile weighs 420 kg.—over 840 pounds; its longest 620 kg.; each shell contains 40 kg. of compressed powder; its charge is not less than 200 kg. Provided with a combination very complicated in appearance, but in reality most simple, of pulleys, beams and springs, its pointing can be varied between 15° below and 30° above the line of the horizon; it is loaded by means of a crane which introduces into the breech its enormous projectile, whose initial velocity of 600 m. per second has never been attained either by the English 80-ton gun or by the 100-ton gun recently adopted by the Italian navy. The breech plate of this colossal cannon works with great facility, and its fire is of mathematical precision.

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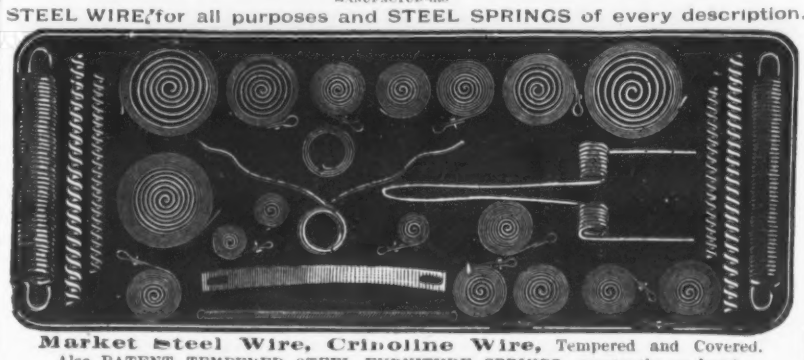

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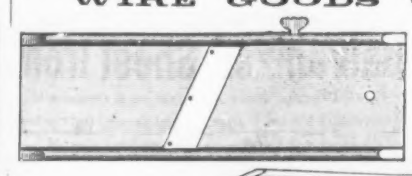

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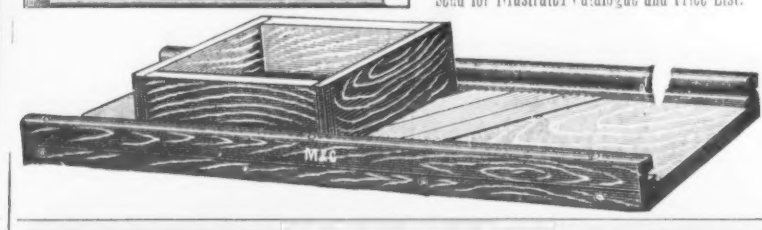

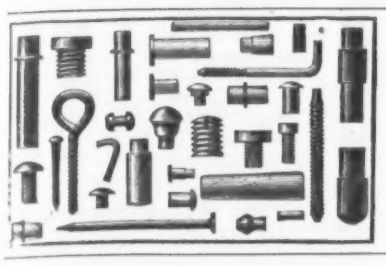

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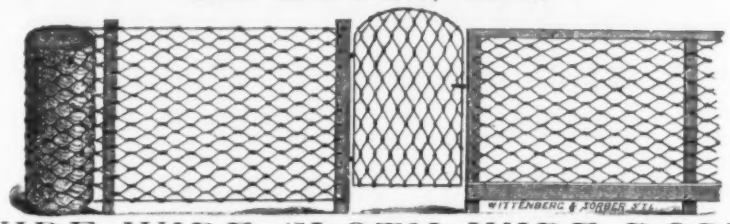

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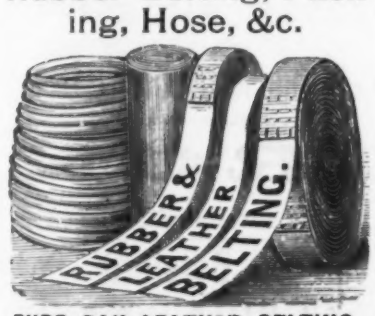

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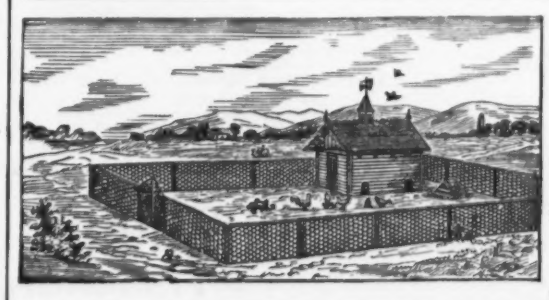

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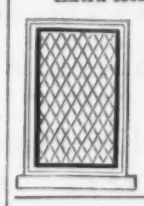

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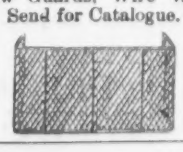

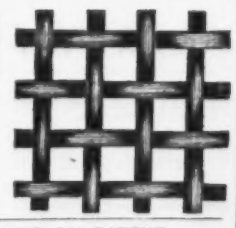

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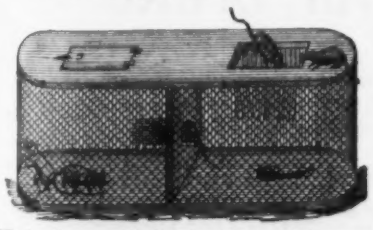

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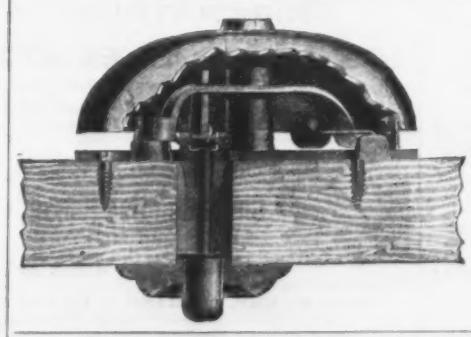

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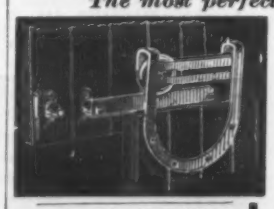

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Mild Steel Castings.

Mr. E. B. Dorsey, who has recently spent some time in Europe, in a paper on structural steel before the American Society of Civil Engineers speaks as follows on the subject of steel castings:

Within the last few years the manufacture of steel castings from mild steel has made great progress, both in improved quality and reduction of cost. These castings are not quite so strong as the same composition would give in wrought steel, provided it is in such shape or size that it can be well worked. We know, however, the great difficulty of forging properly large or intricate pieces. For this reason such difficult pieces are probably stronger cast than forged. In making steel castings the principal difficulties are: 1. The intense heat required to keep the steel fluid makes it difficult to find a material for the molds that will not be affected by this intense heat, or will not injure the steel. 2. Great care is required to make the molds so as to allow for the great contraction in cooling (which is double that of cast iron) and yet strong enough to resist the pressure of the fluid metal. 3. The necessity of preventing unequal cooling, which is liable to cause cracks or fracture.

Many large steel castings have been made in England and France which, from their size and shape, could not have been well forged. These castings have given entire satisfaction. Among them may be named rollers over 8 feet long and 3 feet in diameter; crank-shafts and shafts over 16 inches in diameter; rams for torpedo boats, 28 feet from end to end, weighing 6 tons; stern and rudder frames for ships, 27 x 14 feet, weight 6 tons. The Steel Company of Scotland cast of soft steel a gun carriage that weighed in the rough 28 tons, and after being finished 17 tons, which gave entire satisfaction. After annealing, castings from mild steel have about the same ductility and about one-half more tensile strength than good wrought iron. All castings from mild steel require to be thoroughly annealed. *Lloyds' Registry*, of England, which gives the rating to shipping, made a thorough investigation of the advisability of permitting in the construction of vessels the use of steel castings for stems, stern frames, rudders, tiller quadrants, crank-shafts, levers, link blocks and other parts of vessels and engines that have been made of wrought iron. After careful tests and experiments on a large scale, both in England and France, Chief Engineer Parker reported as follows:

"Tests were also made, not only upon samples of the material cut out of castings, but also upon castings themselves, and similar tests were conducted upon samples of forged iron and forged steel. The result is that we are now convinced that structures can be made of cast steel quite as fit for the purpose intended as those usually constructed of wrought iron, and that they can at the same time be made in such a manner as to avoid the uncertainty inevitably associated with large iron forgings, owing to the large number of weldings necessitated in them."

I can see no reason why large cannon cannot be cast in steel, as described in a paper read before this society by Capt. O. E. Michaelis. Of course one must expect to encounter difficulties and mishaps at the beginning in any important departure from the usual routine, but I am satisfied they would be soon overcome. At any rate, it is worthy of most earnest effort on the part of our Government. In the United States there have been made good steel castings, such as rollers over 3 feet in diameter and 8 feet long, and cylinders 6 feet long and 3 feet diameter, with 10-inch core. Making the steel gun is only multiplying the cylinder four to eight times. Engineers should not expect too much from wrought steel or steel castings. As steel can be had with tensile strength of 150,000 pounds per square inch, there is great temptation to make use of high tensile strength in order to save weight. But this saving is at the expense of reliability. I would not advise its use in any case, whether in compression or tension, with a greater tensile strength per square inch than 70,000 pounds. This will give a very reliable and uniform material, with elastic limit of about 40,000 pounds, which can be worked up to very closely, owing to the great uniformity in steel. In my opinion, this will make a stronger and safer structure than if made of stronger steel. When this limit is much exceeded, both steel castings and wrought steel become unreliable, cracking and breaking without apparent cause. This uncertain action or quality of steel, when of greater tensile strength than 80,000 pounds per square inch, must be governed by some law; but as yet this law has not been discovered. This action is so uncertain that I know no word that expresses it so well as "caprice." This is not very scientific, but it expresses this peculiar uncertain action very correctly. This caprice increases with the tensile strength, commencing, say, at about 80,000 pounds per square inch tensile strength, the percentage of its increase being much greater than that of the tensile strength. Until the laws governing this capricious quality are known, and the remedy found and applied, engineers would do well to confine their work to the preceding limit, leaving the range between 70,000 and 80,000 pounds as an extra factor of safety.

Very great advance has been made in the manufacture of soft or mild steel within the last few years, by which the quality has not only been improved, but the price reduced—for the best steel suitable for boiler purposes to about that of good wrought iron. This gives the engineer at about the same price per pound a much more reliable and stronger material, which, consequently, allows him to reduce the weight and cost. In a few years an order for wrought iron for structural purposes will be as much of a curiosity as an order for iron rails would be from a rich road with heavy traffic.

At a latter date steel castings will largely take the place of difficult or heavy workings that are now made in wrought iron, or wrought steel or cast iron. Cast iron will be confined to cheap works, where strength is not required. Engineers, especially those engaged in structural branches of the profession, should act upon the conclusion that in engineering the iron age is rapidly passing away, as the stone age has done, and will soon be replaced by the steel age.

Iron Manufacture in Sweden.

Norberg, Sweden, says Robert P. Porter, is the most important iron-producing district in Sweden, if calculated by its annual output, and, geographically speaking, it is very near the center of the principal iron region of the country. Outside of this region, and somewhat southwest of it, is the famous Dannemora district, the town of that name producing between 30,000 and 40,000 tons of iron annually, surrounded by places of lesser importance, like Vigelsbo, Skeoka, Ram Hall and Herrang. These mines are supposed to yield the best iron in Sweden. They are 2 miles in length, and lie at a depth of 27 feet below the *grufsjo*, against the encroachments of which they are protected by a massive wall of granite, 37 feet high in places.

Still further south in Sodermanland are a few mines with Kantorp as a center for all practical purposes. The area described contains not only the most important iron districts, but within it is located Falun, famous for centuries for its valuable deposits of copper, and where may be found one of the most remarkable copper mines in the world. Norberg produces annually over 100,000 tons of iron, Persberg coming second, and Striberg and Ganesberg third. There are in this region considerably over 50 towns whose annual product will average from 2000 or 3000 tons of iron to 100,000 tons and upward. Far up in the north of Sweden there are two mountains, situated in the Province of Norrbotten, which are said to contain fabulous amounts of almost pure iron ore.

When compared with England or the United States, the iron and steel industries of Sweden are small. Swedish iron is famous for its quality rather than its quantity. The total production of iron ores in Sweden in 1883 amounted to 20,822,712 Swedish centners (885,124 metrical tons), of which 20,743,073 centners were magnetic and specular and the remainder lake and bog ores. There were 596 mines in operation that year, employing between 6000 and 7000 miners. Professor Akerman, of Stockholm, who ranks first among the iron and steel experts of the Kingdom, gives the following statement of the production of iron and steel during the three years ending in 1883:

	1881. Tons.	1882. Tons.	1883. Tons.
Iron ore	826,137	892,863	885,124
Pig iron	435,428	398,945	422,627
Bar iron and rods, &c.	247,707	259,402	255,853
Bessemer iron and steel	39,328	47,358	50,878
Siemens-Martin iron and steel	11,158	13,405	16,800
Other kinds of steel	1,741	1,430	1,827
Plates	13,134	15,805	17,439
Nails	7,132	8,143	8,197

Though "hopelessly wedded to the heresy protection," Sweden seems to flourish fairly well as an exporting country. Compared with 10 years ago I find the exports in these metal industries increasing as follows:

	1874. Kg.	1883. Kg.
Pig iron	41,853,536	52,126,000
Bar iron	88,525,308	133,161,000
Iron blooms	8,556,642	7,258,000
Iron bolts, hoops, &c	18,526,257	61,678,000
Ore, iron and copper	23,924,172	34,319,000
Steel	7,362,486	11,214,000
Zinc blende	12,357,469	25,643,000

Before passing on to the consideration of Swedish labor it may be well to observe that Sweden must necessarily confine herself to the production of iron of superior quality, and, furthermore, that the quantity of iron produced is by no means caused by any deficiency in the supplies of ore. Sweden, on the contrary, is exceedingly rich in iron ores, which, in general, are of particularly good quality. These ores are mainly confined to certain districts, and when the supply of Bilbao ore gives out, as it must in course of time, the world may look to the immense deposits far up in Norrbotten, a country now but sparsely settled and with little facility for transportation.

It has been estimated that two-thirds of the active population of Sweden earn their daily bread by cultivating the vast territory of the Kingdom, and that not more than one-sixth of the population are employed in the mines and manufactories. The forest districts of Sweden are largely used for the purpose of feeding her many blast furnaces. Both invariably have a common proprietor, and it is not rare that the workman is employed part of the year in the mine or around the blast furnace, and the remainder in cutting wood or cultivating the surrounding land. Thus the industrial organization differs notably from that which prevails in the rest of Europe, and scarcely permits one to establish a comparison in the rates of wages between Sweden and the Western countries.

The good workers in the iron works of Arboga (district of Westmoreland) are paid at the rate of 50 to 60 cents per day of 11 hours. They are lodged free with shed, cellar, about 54 cubic feet of wood for fuel and sufficient land to plant 4½ bushels of potatoes. They receive, further, the medical assistance and medicine gratis. In case of sickness the company allows a sum of 15 cents per day; in case of death it gives the widow $7 for funeral expenses, $2.50 to the husband in case of death of his wife, $1.75 to the parents in case of death of their child. The mediocre workers of the same factory also have the right to the divers aids which have been enumerated, but they only receive 45 cents per day.

Of all the curious comments on the steel-rail combination, the following, from the Philadelphia Times of recent date, is the most remarkable for its absurdity: "There is one feature of the steel business which the rail men do not seem to have given as much consideration as its importance deserved. All their plans, both with regard to production and prices for the future, were based upon rails alone. There is already a steel-rail plant far exceeding the present possible or future probable demand for rails. But there is a constantly growing demand for steel in the form of plates, sheets, wire, bars and nails, and the constant tendency is to the use of steel in many forms in which iron has hitherto been used exclusively. In view of these very obvious facts the rail men might profitably devote a portion of their plant to the production of those forms of steel in which the demand is sure to increase. The indications are that railway building will not for a good many years to come develop into a boom like that of 1880, for the simple reason that the railway mileage of the country is already more than equal to the demands of business. To persistently cling to one form of steel manufacture, and form pools and make prices with a view to that form alone, does not strike the outside looker-on as giving evidence of the highest form of business sagacity. The wise man in business is he who looks into the future for his market and prepares to supply the goods which the future is most likely to demand. If one form of steel manufacture has been over-stimulated till there is not profitable employment for only a modicum of the capital and plant already invested in it, let a portion of it be changed to the manufacture of some other form for which a demand exists or is likely to exist."

Progress in Material Welfare.

The address of Mr. Atkinson, as vice-president of Section I of the American Association for the Advancement of Science, at the meeting at Ann Arbor, has been published, and deserves attention. In his address Mr. Atkinson recognizes the great progress made in material welfare during the past 20 years, both in the production and the distribution of wealth. But he urges that we have no right to rest upon past achievements. During the past 20 years improvements have been mainly devoted to the increasing production and the cheaper distribution of food. With free commerce over a larger area and among a greater number of people than enjoy the same freedom in any other part of the world, it has come to pass, he claims:

1. That nowhere else are the products of labor and of capital so ample.
2. Nowhere else are wages and profits so high.
3. Nowhere else is the cost of production measured in labor so low.
4. Nowhere else are high wages so sure to be the result and reward of a low cost of labor.
5. Nowhere else is so much general benefit derived from the expenditure of money raised by taxation.
6. Nowhere else is so small a part of the public income used for destructive purposes.

Mr. Atkinson refers especially to the increase in railway mileage, which is partly a result of the Bessemer mode of making steel, and to the extraordinary progress made in securing cheaper transportation. The general use of the screw propeller has resulted in an enormous saving, and likewise the use of agricultural machinery, the opening of oil wells, the invention of aniline colors, the employment of electricity, the development of machine tools, and many other improvements to which he calls attention. Comparative safety from loss by fire has been attained by better construction of buildings. Attention is called to the progress already made in the use of phosphate deposits, and to the opportunity for almost unlimited increase in the use of such deposits at the West, and the salt deposits of Canada. In spite of all this, Mr. Atkinson maintains that the average product of the people does not exceed 50 to 55 cents per day for each person. The progress of invention or machinery has displaced a great number of workers for a time. On the other hand, the reaction from a period of unusual activity in railroad building has displaced, he maintains, more than 100,000 persons formerly engaged in such labor. There is enough in the country for all, and yet there is little room for further saving in some directions—in the cost of transportation, for example—while in other directions there is still enormous waste, and especially in the distribution of perishable commodities.

Mr. Atkinson urges that the waste land of New England can probably be employed most profitably by use of the phosphates without nitrogenous fertilizers, and instances his own experience, stating that he has himself supported two cows every year from the product of 1 acre for five years past. He presents a body of interesting information regarding the use of cotton-seed, and the cost of raising cattle with pitted corn as a chief element of food, and believes that New England can yet raise animal food at a less cost than it can be produced in Texas, and can grow all the beef it can eat from its waste land, if the methods he discusses prove feasible.

Concerning the value of different articles of food in consumption, Mr. Atkinson presents tables prepared in part by Professor Atwater and by German scientists, showing the proportions of protein, of fats and of carbo-hydrogens in the different kinds of food in common use. In the same connection tables are given of the kinds of food most largely employed in this and in other countries, and it is interesting to observe how the natural tastes of the people in many countries have led them to prefer articles of diet which contain, in large measure or at the least cost, the chemical elements necessary to sustain life and to maintain strength for productive labor. The information on this subject which the address presents is too scientific in character for popular appreciation, but it is interesting to know that the Scotchman who prefers his oatmeal, and the New Englander who prefers his pork and beans, and the Southern negro who chooses above all things hog and hominy, all have a scientific reason for preferring, as the cheapest in proportion to the nutrition contained, the very kinds of food of which they seem most fond.

Combination of Belgian and German Zinc Manufacturers.—It is reported from Brussels that the Belgian zinc producers are about to join the German Zinc Convention—a statement which indicates a further development of the principle of international trade combination already illustrated by the international steel-rail and marine conventions.

The *Black Diamond* is the title of a newspaper devoted to the interests of coal miners, shippers and merchants, the first number of which was recently issued in Chicago. It aims to become the exponent of these interests in the West.

Steel for Shipbuilding.

Mr. Jeremiah Head, a well-known English ironmaster, has recently reviewed the question of the use of steel in shipbuilding in a very able manner in his inaugural address as president of the British Institution of Mechanical Engineers, in which he spoke as follows:

Steel, as now made to Lloyds' requirements, is superior to iron for shipbuilding purposes for two reasons, which I am inclined to consider of primary importance, namely: 1. It is very much more ductile. 2. It is equally ductile in both directions of the grain. To these reasons may be added three others, which I look upon as of secondary importance, namely: 1. It has 30 per cent more tensile strength in the direction of the grain. 2. It has 50 per cent. more across the grain. 3. Its elastic limit is 21 per cent. more in either direction of the grain.

I have placed tensile strength and elastic limit in a secondary position as compared with ductility, because in the former respect iron has always proved itself at least equal to the ordinary demands upon it. Indeed, the examples of the Great Britain steamship, built in 1845; the John Bowes, in 1851; the Great Eastern, in 1857, and many others still afloat, prove that if a well-built iron ship be kept off the ground and free from collisions its life is practically unlimited. Serious collisions have the same disastrous result, whether iron or steel be the material concerned. The circumstances wherein steel most strikingly shows its practical superiority are when minor accidents occur, such as slight collisions, grounding in moderate weather, and so forth. In such cases steel ships have repeatedly remained tight, and returned safe, though in a battered condition, when, had they been of iron, they might probably have become total losses. The benefits of marine salvage, however, usually accrue to the underwriters, and not to the shipowner. The former have an obvious interest in saving to the utmost, while the latter may even gain by the loss of his ship. Apart from humanitarian considerations, no fully-insured owner would wish to recover his ship in a seriously damaged condition. Nevertheless, it is the owner who decides the material to be adopted, and not the underwriters. Should the diminution of risk by the use of steel be accurately determined in the future, and the insurance premiums be adjusted accordingly, then it may become the owner's interest more clearly than it is at present to specify the more ductile material. Up to the end of 1883 steel could not be said to have superseded iron at all in shipbuilding. For although 166,428 tons of steel shipping were made in that year under Lloyds' survey, still the tonnage of iron shipping surveyed during the same year was 933,774 tons, or considerably greater than any previous year. So far, therefore, the steel used was in addition to and not in replacement of iron.

In the disastrous year 1884 the total tonnage built was 28 per cent. less, while the tonnage of steel shipping built was 132,457 tons, or 20 per cent. less, and of iron 661,201 tons, or 29 per cent. less, than the previous year. Had there been no such material as steel all would doubtless have been built of iron. We must therefore consider that the proportion of steel shipping to that of iron shipping built last year is the proportion in which the latter had then become superseded. That proportion is about 20 per cent., or one-fifth. During the first half of 1885 steel vessels amounting to 67,469 tons had been built to Lloyds' survey, out of a total of 221,423 tons, or 30 per cent., showing a continued progress in the gradual supersession of iron by steel. The practical question whether to adopt steel or iron, which shipowners must decide before commencing to build, involves some rather curious considerations. Relying upon the circumstance that 30 per cent. more tensile strength could be obtained in steel than in iron, and with the experience gained by a series of experiments, Lloyds' committee agreed in 1877 to allow for the stronger metal a maximum reduction of 20 per cent. in weight of scantlings, and issued rules accordingly for the general guidance of shipbuilders. A structure built under such conditions might be supposed still to have a margin of 10 per cent. excess of strength. But such reasoning would be misleading, because certain elements which ought to be included in the calculation are omitted. If a piece of metal, such as an iron or steel plate, be strained as a girder, it gives way by bending when the tensile strain on the outer surface, or the compressive strain on the inner surface, exceeds the respective elastic limits. Power of resistance to compression is therefore of such importance in cases of bending that only in so far as this holds out is tensile strength of any avail. To neglect compression is like attempting to use a lever with a yielding fulcrum. Again, still looking upon a ship plate as a broad girder, we shall find that resistance to bending is in proportion to the square of the depth of the girder—that is, the thickness of the plate. For example, if two pieces of plate of equal width and length, and ⅝ inch and ½ inch thick respectively, be laid upon supports and weight be placed upon them, the first will be found to sustain more than the second in the proportion of 5^2 to 4^2, or 25 to 16—that is, the thinner piece will sustain 36 per cent. less than the thicker ones. If the former were steel, and therefore stronger on that account by 30 per cent. than the latter, say, of iron, still it would be weaker in the proportion of 30 to 36 by reason of its diminished thickness. It therefore becomes clear that an iron ship is likely to retain its form better than a steel one built 20 per cent. lighter.

It is but just to Lloyds' committee to point out that, while permitting a reduction of thickness of 20 per cent. in steel ships, they insisted on, and have invariably enforced, a system of testing and inspection far more severe and rigid than was ever applied to iron ships. All the steel used must support a tensile strain of between 27 and 31 tons per square inch in any direction, besides a quenching test. And whatever does not fulfill these conditions by ever so little is relentlessly rejected. The sudden transition from the comparatively easy-going inspection which iron for shipbuilding receives to the severity of that of steel is of itself suggestive that Lloyds' committee have for long been themselves apprehensive that 20 per cent. is far too great a reduction to allow. They seem, in fact, to say to the shipowner: "If you will avail yourself to the utmost of our permission to reduce thicknesses, in order to cheapen the cost of the ship and carry somewhat heavier cargoes, you may do so. But we will watch that not a piece of steel is used which has not the very highest degree of tenacity attainable short of liability to brittleness." During the last seven or eight years evidence has not been wanting to confirm the suspicion that the 20 per cent. reduction was too great even as a maximum. It is not easy to obtain exact particulars or definite cases, inasmuch as those who are best informed naturally refrain from proclaiming what might tend to depreciate their own work or their own property. But I am informed on authority which I have no reason to doubt that there have been cases of steel ships returning from voyages more or less strained and out of shape in a way rarely experienced previously; other cases where it has been found necessary to strengthen the ship externally after completion, in order to avert anticipated difficulties of the same kind, and one case where the position of each frame could be traced by the eye from the outside, owing to the plates bulging inward from external pressure.

Mineral Lubricating Oils.

Statistics of fires among New England mills have shown that 37 per cent. of fire losses are caused by spontaneous combustion and hot journals from friction caused by bad oils. A good lubricating oil should be neither acid nor strongly alkaline, nor should it through variations in temperature become acid or alkaline. Most vegetable and animal oils when they are exposed to high temperatures, such as that of superheated steam, are decomposed and acids are set free, as they are composed of stearic, oleic and palmitic acids combined with glycerine. These free acids corrode the surface of the metals, making them rough and forming compounds which are the very opposite of lubricants. Their use, therefore, for journal-boxes in hot weather, or where they become heated, is to be deprecated, for at high temperatures they combine with the oxygen of the air and decomposition results. A mineral oil never becomes acid from decomposition, and will not corrode the metals to which it is applied. When these oils are mixed with glycerine they form a very good lubricant. The great danger in buying mineral oils is that large quantities are annually put into the market far below the necessary flash test. These oils should be prepared by fractional distillation at a temperature not below 500° F. When mineral lubricants with a low flash test are used, they are exceedingly dangerous, as on becoming heated in the journal the volatile parts go off as vapors, making it dangerous to examine a journal or any other part with an open light. In order that a mineral oil should be a good lubricant, it should not flash under 300° F.; should not give off more than 5 per cent. of volatile matter at 140° F. in 12 hours; should be free from grit, and should contain no free acids or alkalies.

To determine the flash test accurately, an instrument too complicated for the use of the ordinary manufacturer is required; but he may for his purpose approximately determine the same by pouring the oil in a flat dish, which is placed on a plate containing dry sand, to which heat is applied (so as not to apply the heat to the oil directly), thus causing a gradual heating of the oil. A thermometer is then inserted some distance from the bottom of the dish, and the rise of temperature noted. A lighted taper is then moved over the surface of the oil, care being taken not to touch it. If the vapors given off by the oil flash below 300° F., the oil is to be condemned as unfit to be used as a lubricant. In order to determine the amount of solid foreign matter (such as grit) in oil, a sample, very near the bottom of the barrel (as the greater gravity of the solid material will cause it to settle on the bottom), should be taken and placed between two clean glass plates, and then rapidly rubbed together, when the grit will at once be detected. Mineral oils sometimes give an acid reaction, not from any decompesition of the compound, but from the sulphuric acid used in the processes of manufacturing it, which has been incompletely neutralized with caustic soda. If the amount of soda has been too small an access of acid remains, while in the presence of excess of soda a residual amount of soda will remain, which also has a bad influence on the metal bearings.

A test for sulphuric acid can readily be made by mixing a sample of the oil with water, and, after shaking it well, allowing it to stand until the oil separates from the water, which is then poured off. On account of its hydroscopic properties the sulphuric acid will have united with the water. If now a solution of a barium compound be added to the water, a white precipitate of sulphate of barium will at once be caused if sulphuric acid be present in the oil. In order to make the test sure, as there are other acids which throw down a white precipitate, the precipitate must be treated with strong nitric or hydrochloric acid, and, if it remains unchanged, sulphuric acid is contained in the oil. If the litmus paper shows the presence of alkalies, these may be tested by treating the oil with water, as before described, then evaporating the solution to dryness and placing the residue in the colorless flame of a Bunsen burner. Sodium will give an intensely yellow flame; if potassium be present a beautiful violet flame will be produced. Adulterations of animal oil or mineral oil may be detected by adding concentrated sulphuric acid, when the animal oil will be charred, forming black rings in the sample. Vegetable or animal oils can also be detected by adding an alkali to the sample, thus causing these to saponify, as mineral oils have not the property of saponification readily. Oils are frequently adulterated with cotton-seed oil, which is prone to ignite waste spontaneously.

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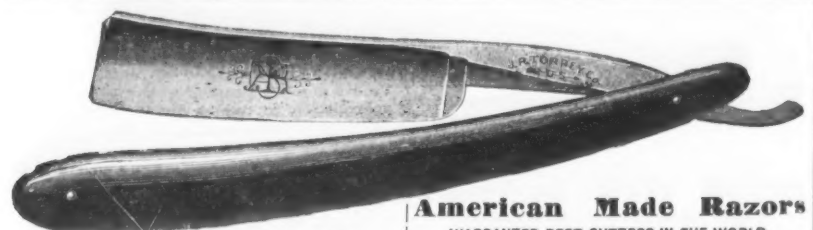

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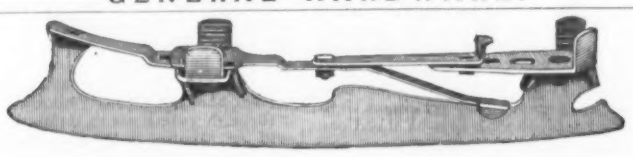

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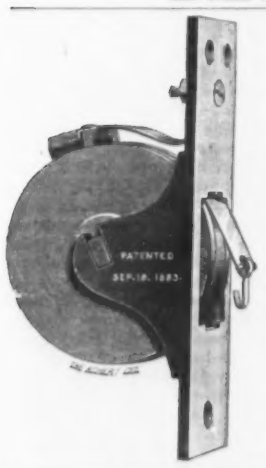

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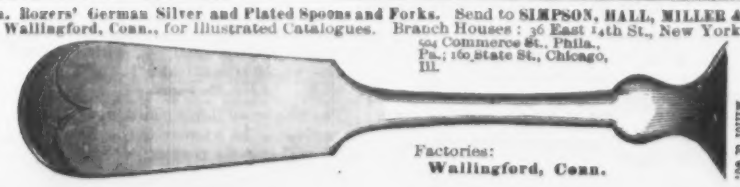

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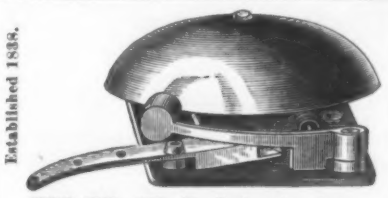

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French Sheet Steel, 3 1-4 in. wide, from 4 to 65 thousandths.

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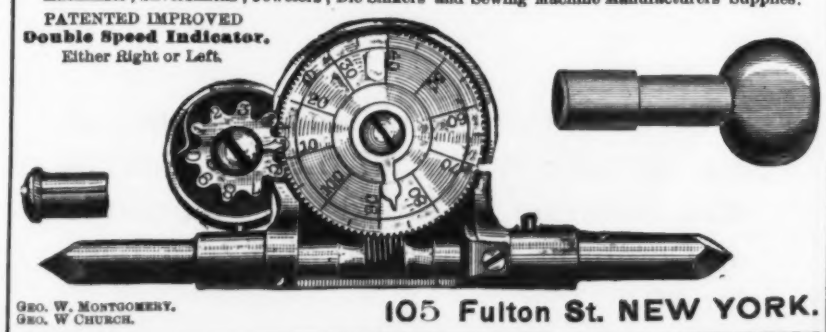

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Case-Hardened Throughout. Parts Interchangeable.

This Wrench not only combines the superior qualities of a gas Pipe Wrench but also all the requisite combinations of a regular Nut Wrench, thus making a combination which has no equa

No. 3 PATENT PIPE WRENCH.

The serrated jaws of the Wrench are interchangeable; that is, the same serrated plate may be used for either the stationary or sliding jaw, so that if one plate is broken another can be furnished adapted to either jaw without express designation. The slides, nuts and various parts are also interchangeable, thus easily repairing the Wrench at very small expense, and with as perfect practicability for further use as when the Wrench was new.
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This Wrench can be Furnished with Long Nut or Sleeve.

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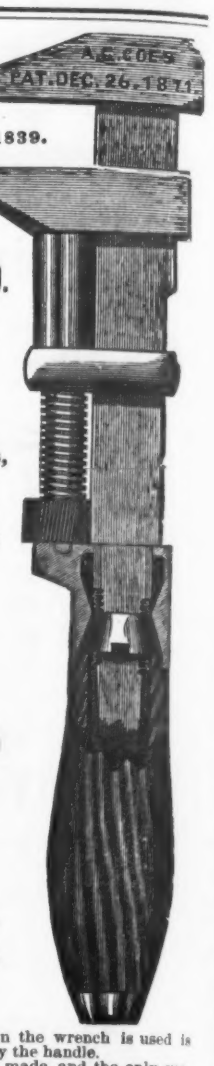

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Screw Wrenches.

PATENTED,

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The back strain when the wrench is used is borne by the bar—not by the handle.
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Mexican Finances.

The *Epoca* and *Diario Official*, of the City of Mexico, contain an exposition of the present financial status of the Mexican Government, which must be regarded as coming from high authority. The details are not without interest to the American reader. The financial plans of the Government, as heretofore stated, embrace two things—first, severe economies in the expenses of administration; second, the creation for Mexico of a creditable financial status abroad, removing the stain of national bankruptcy. The following shows the situation as it stands to-day:

Expenses of administration for all branches of the Federal service, 1885-86	$22,500,000	
Discount for reduction of salaries	2,221,545	$20,278,455
Deficiency to June 30, 1885		24,043,600
Probable income fiscal year 1885-86	27,000,000	
Emission Treasury bonds for the conversion of floating debt	25,000,000	
Surplus disposable for other expenses		7,677,945
Balance	$52,000,000	$52,000,000

An interesting point noted by the *Epoca* is that while Congress, in lavish disregard of the financial situation, appropriated for the current fiscal year $38,903,353, the administration has cut down the estimates—in the exercise of the executive prerogative—to $20,278,455, a saving of $18,624,898. By the funding of the floating debt the Government relieves itself from the necessity of considering a very embarrassing deficit, except that the interest payment must be met; and by wholesale retrenchment in departmental expenses it is made possible for the Government to live within its probable income this year and to lay by something to meet the payment of the interest on the debt, and, as well, to resume the payment of the railway subsidies, should that be deemed advisable. Estimating a surplus over the expenses of administration of $7,677,945, the following payments can be met:

Surplus for 1885-86		$7,677,945
First semi-annual installment of interest of Treasury bonds, 6 per cent	$750,000	
First semi-annual installment interest, ½ per cent. on $65,000,000	325,000	
Tenth installment American debt	900,000	
Subvention to the Central, National and Mexican railways	2,360,000	
Harbor improvements and other subventions	1,942,945	5,677,945
Excess for other expenses		$2,000,000

"These calculations," adds the *Epoca*, "while not making any pretense to exactness, are yet not far out of the way. The payment of interest on the consolidated debt is based, as will be noted, on the sum of $65,000,000. In our own calculations, we had estimated on the consolidated debt amounting to at least $110,000,000, but it is probable that the Government does not expect to have completed more than the conversion of the foreign debt by the time the first installment of interest is due."

The Efficiency and Duration of Incandescent Lamps.

The September number of the Franklin Institute *Journal* contains as a supplement the report on the efficiency and duration of incandescent lamps, made by a special committee which was engaged for many weeks in a series of exhaustive tests. The report, which is fully illustrated, fills over 100 pages of the magazine, and is the most important and valuable recent publication by the Institute. Every detail of the methods of making the tests is described, so that the reader, if a practical electrician, can determine for himself whether the measurements and calculations have been reached by instruments and rules of procedure free from risk of error. The tables giving observed results are also very elaborate, and show the great care taken by the committee to collect the data from which to determine the economic value of the several lamps. The committee, however, makes no comments, confining itself to a clear description of observed facts and leaving the reader to draw his own conclusions. Besides the general results shown in the report, the history of each lamp under test is given for a period extending from April 11th to May 28th, during which time the current was continuously supplied to those that survived the time test. Observations were made daily, and with such accuracy and care that the presence of a widespread magnetic storm, of which there were no other indications, was disclosed by the records kept of the candle-power of the lamps in relation to the current. The presence of a magnetic variation accounting for the observed fluctuation was afterward confirmed by reports from far distant magnetic observatories.

Of the particular results obtained no summary can well be made, but one fact is worth noting. When, six years ago, the first account of the Edison carbon filament lamp was given, the inventor declared as his purpose to make a lamp of high resistance, giving a light of 16 candle-power and requiring a current of about 100 volts. At that early day Mr. Edison claimed that some of his lamps lasted 1200 hours, and that he could guarantee an average life of 600 hours. It is interesting to note, as a result of these tests, that Mr. Edison has closely adhered to his then programme, and that the average "life" of his lamps has been prolonged beyond 1000 hours. The current required in volts was about 97, the mean candle-power (spherical) was 15.47, and all but one of 20 lamps survived at the close of a test lasting 1065 hours. One general result of the trial is to clearly settle the fact that incandescent lamps can be made to give the candle-power claimed for them and to last the number of hours which are required in order to enable them to compete in cost with gas.

At the Ann Arbor meeting of the Association for the Advancement of Science, President Edward Orton, of Columbus, Ohio, read a paper describing the new oil and gas fields of Northwestern Ohio. The oil there is but a small product, but gas is found in large quantities. At Findlay there are six wells, with a yield of between 3,000,000 and 4,000,000 feet per day. At Bowling Green there are three more, and one at Fremont, making the total daily product about 4,000,000 cubic feet. He also touched on the source of the product, its horizon being some distance below the fields of Eastern Ohio and Western Pennsylvania.

The Circular of the Cleveland Rolling Mill Company.

Recently a committee of citizens of the Eighteenth Ward, Cleveland, called at the office of the Cleveland Rolling Mill Company, and, representing to President Chisholm the depressing effect upon the ward caused by the continued idleness of the mills, asked that some measures be devised to resume operation at the works. Mr. Chisholm heard the committee, and on the 22d ult. the following printed circular was distributed through the ward:

To the Citizens of the Eighteenth Ward: At your request we make the following statement explanatory of our position. We have not deemed it advisable to do this before, thinking the less said about the matter the better, but as you have urged us to state the facts, and believing that you will state them truthfully to the men, which has not been done by the men who have been leaders in this trouble, we have concluded to do so.

First, we wish to correct some of the statements made by a number of leaders of the strike, and by some of the papers of this city, and copied in the press throughout the country, which are false, and have been the means of antagonizing the men against the company:

Imported Labor.—This point has been referred to so often by demagogue speakers endeavoring to get sympathy from the public for the men, but principally from the men for their own benefit, that we would state that no man was ever imported from Europe, or brought from Castle Garden, or any other place outside of this city, by this company or any agent of this company to start the works during the strike of 1882. This was not necessary, as we had offers of two men to one that we needed to start our works, and all of these men were living in the city then. We have offers now from men in Pittsburgh who are anxious to come and start our works at the wages offered, but we do not want them, because, in the first place, there is not money enough in the business to go to the trouble and expense of doing that, and, in the second place, we believe that if our men understood the situation they would willingly return to work at the terms and wages offered.

"*Stockholder Stone.*"—In reference to "Stockholder Stone," we can say that the person referred to is not and never was a holder of any stock in this company, and had no authority for using the language with which a sheet in this city credited him. We would refer to any of the men on committees and ask them if from their experience any such language would be likely to come from Mr. Chisholm or any member of the company and we denounce, in the strongest terms, the matter referred to in that article as false from beginning to end, so far as the Chisholms and the company are concerned.

Store Orders.—For the last five years no commissions have been paid our paymaster for drawing orders on stores, and he has instructions to draw orders on any store not selling liquor that the men desire them drawn on. We should state that less than 3 per cent. of the pay-roll is taken out in orders. We keep money at the works which we allow such men to draw between pay-days as we know need it.

Present and Future Business.—We have never seen a time since our organization when business was so slack as at present. We have no orders on our books, and unless we started to make up a stock for the future we could not start up our works, probably, sooner than two weeks after it was decided to do so, on account of no orders. We certainly cannot run if we do not get the business, and the longer the works stand idle the prospects for running steadily grow less every day, because our customers are being drawn to other places to get their supply. We would state that some of our departments have been kept running at a loss and no dividends have been paid the stockholders for over a year, showing that the men have been getting the money from the business, and not the stockholders.

Wages.—We do not pretend to follow in all cases the same price per ton as paid in Pittsburgh, although most of our departments are paid what they call scale prices, but men working by the ton in other departments not paid scale prices can earn as much money per day as men in mills paying scale prices, because the output in these departments is greater than in other mills. If the selling price in Pittsburgh ever gets to cost, we cannot be expected to pay as much wages as they do there, on account of the gas which they use for fuel against our coal, and the freight discriminations made by the railroads against Cleveland. As against this some have said we have our own ore mines and our boats. The ore mines we had are worked out, and we never had any boats; but we hope the time will never come when we cannot pay our men as much per day for the same kind of work as they do in other places. If the men are unwilling to work for the wages offered, the works will lie idle until such time as the company can afford to pay more.

If the men will go to work at the wages offered until November 1, we will do what we can to run steady, and, if we find prices and business revived sufficiently to warrant restoring the wages paid in June, we will do so gladly, and, if after November 1 we cannot restore wages, the works will be shut down or continued running, as may be deemed best.

The papers have had something to say about more mills starting up in the country. That does not mean that prices have advanced. We cannot tell about prices until we get into the market again. Our production no doubt will have some affect on the market. The price of any article is regulated by supply and demand. If we find in one month after we start prices and business will warrant us restoring wages, it will be done. CLEVELAND ROLLING MILL CO.

CLEVELAND, OHIO, August 22, 1885.

English Letter.

(*From Our Regular Correspondent.*)

LONDON, August 17, 1885.

THE SITUATION

is dull and free from other than minor variations in all directions. As I have remarked on former occasions, August is always a dull month, owing to the prevalence of the holidays, and this year it seems worse than usual, inasmuch as the long-continued hot weather has driven out of the towns and cities everybody who could by any possibility get away. So far as my means of information serve to show, there is no change for the better in any branch of the iron or steel trades. I have a private letter from the manager of one of the largest concerns in the North of England, in which it is stated "there is plenty of work under execution at self-contained places like our own, but it has to be taken at prices which leave only the very barest margin of profits—indeed, in some cases there is only the choice of going on at a slight loss in order to avoid stopping altogether, and the much more serious consequences thereby brought about." Even such works as these, which have their own coal, coke and ironstone, are unable to see far ahead, and some of them will have a bad winter unless a very marked improvement should come about within the next two or three months. It is pretty plain, therefore, that the optimists have no good ground for their sanguine views, and that most of the probabilities are in favor of a continuation of the "squeezing out" process for some months ahead. Whether we are or are not worse off than you in the United States, or the Germans, Belgiums, French, &c., is not much to the point, regarded from the standpoint of the British manufacturer, who would be perfectly content to know that all the world besides was suffering, provided he were well employed. As it is, however, all the world is suffering, and John Bull feels the depression through the poverty of his customers. If the question be one of endurance John will grin and bear his fate like a man in the full and certain conviction that, if it is a matter of the "survival of the fittest," he will be extremely likely to come out uppermost in the long run.

It may interest some of your readers to know that Sir Isaac Lowthian Bell has given to the people of Newcastle a park of 9 acres of land and a large building called "Washington Hall," the latter being destined to be used as a convalescent home by the authorities of the town.

The meeting of the Iron and Steel Institute at Glasgow, early in September, bids fair to be very successful. You will no doubt have ascertained from the advance programme that the papers to be read will include one on "The Structural Features and Working of the South Chicago Blast Furnaces," by Mr. F. W. Gordon, Philadelphia, and Mr. E. C. Potter, Chicago. Among the new candidates for membership is Mr. James H. Bartlett of Montreal, Canada. The visits to works and excursions bid fair to be the features of the meeting.

THE IRON MARKET

is very quiet, and the prospects of the trade in its general branches do not seem to improve. In some quarters there is said to be plenty of work for the present, but only at prices which yield the barest possible margin of profit. At Glasgow the warrant market has been rather easier this week, with a moderate amount of business, the closing price being 41/2 ₱ ton. Scotch makers' brands are about the same nominally, although two or three of them are to be had at 3/ @ 6/ ₱ ton less money. Stocks are steadily increasing, while shipments are on a poor comparative scale, so that the outlook for Scotch pig is anything but bright. The make is more than consumers can deal with, especially as they use so large a quantity of Middlesboro' pig iron. At Middlesboro' there is still no animation, No. 3 being quoted at 32/ @ 32/3, with other numbers at about late rates. The shipments are on a moderate scale, but the local consumption is indifferent, and there seems to be no likelihood of an early change for the better. On the West Coast hematite pigs are slow of sale, mixed numbers being about 43/ ₱ ton, owing to the relative slackness of some of the rail mills. Here, also, the stocks are increasing, and the production is outside the wants of the market. Elsewhere crude irons are weak and slow of sale. In manufactured iron I have no change whatever to report. There is a good deal of work in hand at the larger concerns, but in all cases prices are very low, and in respect of ordinary finished iron the demand runs very largely on common sorts. In fencing wire the German makers continue to push our manufacturers very hard—indeed, some of them declare "there is no money in the business," and only keep going because they think it better to sustain a small definite loss than to close their works altogether and lose their men and business connections. Old materials are dull and neglected at the following rates for export: Old double-headed rails, £2. 10/ @ £2. 12/6; No. 1 heavy wrought scrap, £2 @ £2. 2/6; old boiler tubes, £1. 15/ @ £2; old leaf-spring steel, £2. 5/ @ £2 7/6, and old cast iron, £1. 17/6 @ £2, all f.o.b. London or other good British port.

Freights are easy, pig iron by ordinary steamers from Glasgow to New York being nominal at 1/ ₱ ton. With regard to the Bristol Channel ports, Edwardes, Robertson & Co., Cardiff, say: "We have no change to record in the freight market; the same inactive state of affairs still exists, the small quantities going forward finding room at about 7/6 ₱ ton for the Northern ports. The season for shipments to the Southern ports is now close on us, when advantage can be taken of the outward-bound cotton fleet to secure the lowest freight rates for Galveston, New Orleans, Charleston, &c." As to the Australasian and Eastern ports, Mr. W. Balchin, London, reports: "The freight markets, as regards the Australian colonies generally, has received a somewhat severe shock by the starting of another opposition line of sailing vessels from Antwerp, freights from that port having dropped to very low figures in consequence. The opposing brokers appear to be extremely active, canvassing in every direction and offering to take goods at through rates from all parts of the United Kingdom. It remains yet to be seen to what extent shippers will avail themselves of the advantages offered, bearing in mind the extra insurance and the severe trials which goods of a perishable and fragile nature will undergo in the double transit and stowage. The effect of the keen Continental competition is beginning to be felt severely by those vessels for Australia which depend to a large extent on Continental support, and I am of opinion that this will have the effect of reducing rates generally before long. I would recommend shippers to send forward all they possibly can while the opposing vessels are on the berth at Antwerp, as the "ring" brokers will, of course, try to recoup themselves by raising the rates as soon as the competing line is disposed of. To America inquiries for goods are very active, steamers at present experiencing great difficulty in getting full cargoes, rates now being to a great extent ruled by a 'freight ring.'"

Steel is quiet in all directions, and there is no new feature to report in any branch of the industry. Steel rails are dull at former prices on the basis of £4. 15/ ₱ ton for ordinary heavy sections. The Eston Works are said to be temporarily laid off for want of orders, but will no doubt soon be restarted. The price at which the Spanish order for rails has been taken is understood to be 157 pesetas, equal to £6. 0/9 ₱ ton, delivered at Huelva, with payment by 90 days' banker's bill on London. English rails at association prices, with freight and insurance, would cost rather more than this for net cash payment, not to mention the duty in Spain.

SCOTCH PIG IRON

is rather easier on the week, and the market is decidedly quiet in all respects. Warrants have declined to 41/2, and some of the makers' brands are 6d. or so cheaper. There are now 92 furnaces at work, as against 94 a year ago. In Connal's stores there are 615,040 tons of pig iron, as compared with 586,747 this date 1884. The shipments to date are 70,473 tons in arrears this year, while the importations of Middlesboro' pig iron into Scotland have increased by 70,128 tons. Current prices are:

Deliverable alongside.	No. 1.	No. 3.
Gartsherrie, at Glasgow	46/6	44/
Coltness, "	48/6	45/6
Langloan, "	47/6	45/6
Summerlee, "	46/6	44/
Calder, "	....	44/
Carnbroe, "	45/6	43/6
Clyde, "	46/	42/
Monkland, "	41/3	39/
Quarter, "	41/	38/6
Govan, at Broomielaw	41/3	39/
Shotts, at Leith	48/	47/
Carron, at Grangemouth	51/	47/
Kinneil, at Bo'ness	44/	43/
Glengarnock, at Ardrossan	46/	41/
Eglinton, "	41/3	38/
Dalmellington, "	42/6	39/6

STATISTICAL.

Mr. Jeans, secretary of the British Iron Trade Association, has prepared and issued certain statistics as to the first half of 1885, which are prompt and of interest. They show that the make of pig iron in the first half of 1885 was about 184,000 tons less than in the corresponding period of 1884, the decrease being largest in the hematite district of West Cumberland. The make was best kept up in forge pig, taking the country as a whole. The net increase of stocks during the half-year was 243,386 tons, not including any augmentation which may have taken place in makers' own yards in Scotland. The production of Bessemer steel ingots decreased by 14,000 tons, mostly in South Wales and in Cleveland. The output of steel rails fell off by 92,718 tons, Sheffield only showing an increase. The full statistics are appended:

PIG-IRON PRODUCTION IN 1885.

No. I.—*Make of Pig Iron in the United Kingdom for the Half-Year Ended June 30, 1885, Compared with That of Corresponding Half of 1884.*

District.	Total prod'ction of pig iron. First half of 1885.	Total prod'ction of pig iron. First half of 1884.	Increase in 1885.	Decrease in 1885.
	Tons.	Tons.	Tons.	Tons.
Cleveland	1,217,350	1,280,754	....	63,404
Scotland	483,600	527,044	....	43,444
West Cumberland	370,754	443,874	....	73,120
Lancashire	365,430	398,706	....	3,396
South Wales and Monmouthshire	383,547	450,633	....	67,086
Derbyshire	179,771	156,317	23,454	....
South Staffordshire and Wo'stershire	183,940	185,065	....	1,125
North Staffordshire	159,132	128,181	30,951	....
W. & S. Yorkshire	117,345	132,910	....	15,565
Lincolnshire	139,704	123,952	15,752	....
Northamptonshire	104,712	134,721	....	30,009
Shropshire	20,713	23,000	....	2,287
North Wales	22,500	10,463	12,037	....
Notts, Leicestershire, &c	58,607	25,600	33,007	....
Totals	3,807,085	3,991,220	....	....

Net decrease of make in 1885, 184,125 tons.

No. II.—*Quantities of Forge, Foundry, Hematite and Spiegel Iron, Respectively, Made in the United Kingdom During the Half-Year Ended June 30, 1885, as Far as Returns of the Same Have Been Received by this Association.*

District.	Returned production during half-year ended June 30, 1885, of Forge iron.	Foundry iron.	Bessemer hematite.	Spiegeleis'n and ferro-manga'e.
	Tons.	Tons.	Tons.	Tons.
Cleveland	.... *	.... *	241,525	*
West Cumberland	52,710	1,635	234,432	12,216
Lancashire	10,570	11,543	285,696	15,592
South Wales	61,110	7,090	226,702	10,854
Derbyshire	22,231	16,350	....	....
North Staffordshire	73,313	4,663	....	....
South Staf'dshire, &c.	100,181	52,049	259	....
W. and S. Yorkshire	59,464	38,698	....	....
Lincolnshire	78,149	46,722	....	....
Northamptonshire	79,089	25,733	....	....
Shropshire	17,633	80	....	....
North Wales	2,580	....	....	14,100
Notts, Leicestershire, &c	42,927	10,080	....	....

* As there is only one Cleveland firm engaged in the manufacture of spiegeleisen, the make of that firm is placed under the head of "Bessemer hematite." Returns of the production of Cleveland iron have not been specially collected by this association, and the statistics collected by the Cleveland Ironmasters' Association do not distinguish the several proportions of forge and foundry iron produced.

BUFFALO PORTABLE FORGES AND HAND BLOWERS.

Warranted Superior to any other make, and Guaranteed to give Perfect Satisfaction.

For sale by all the leading Iron, Hardware and Machinery Dealers throughout the country

BUFFALO FORGE COMPANY,

BUFFALO, N. Y.

Send for Complete Catalogue.

PENFIELD BLOCK COMPANY,

LOCKPORT, - - N. Y.

ANCHOR BRAND

TACKLE BLOCKS and TRUCKS

*** BRONZE MEDALS at CHICAGO EXPOSITION. ***

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L. M. RUMSEY MFG. CO., *St. Louis.*

FILLEY'S "DIAMOND F" TUYERE IRON

WITH SLOTTED BALL VALVE.

MANUFACTURED BY: SECTIONAL VIEW.

ST. LOUIS MALLEABLE IRON CO.,

2106 to 2128 Market Street ST. LOUIS.

FROST'S PATENT THILL SPRING.

(ANTI-RATTLER.)

Over two millions now in use, giving perfect satisfaction.
Does not show when in the carriage.

The above Cut shows the Wear of a Spring that has been in constant use for over one year.

Every pair warranted for one year, and *NO RATTLE*. I take all the risk, you take none. Send for Circular and Price List to

STILES FROST, Sole Manufacturer,

276 Devonshire Street, BOSTON, MASS.

PRIZE MEDALLISTS.

Exhibitions of 1862, 1865, 1867, 1872, 1873, and only Award and Medal for Noiseless Steel Shutters at Philadelphia 1876, Paris, 1878, and Melbourne, 1881.

CLARK, BUNNETT & CO., LIMITED,

LATE CLARK & COMPANY,

Original Inventors and Sole Patentees of

NOISELESS, SELF-COILING, REVOLVING STEEL SHUTTERS,

Fire and Burglar Proof. Also improved ROLLING WOOD SHUTTERS of various kinds, and Patent METALLIC VENETIAN BLINDS.

Office and Manufactory, 162, & 164 West 27th St., New York.

THE SCHEIDLER POST HOLE DIGGER.

Makes a hole any desired size.

Works perfectly in all kinds of soil.

SIMPLE, RAPID, EASILY OPERATED AND DURABLE. DECIDEDLY THE BEST DIGGER MADE.

MYERS, HOUSEL & CO., Manufacturers, CANTON, OHIO.

THE NORFOLK SHEAR CO.,

Manufacturers of the finest line of Steel laid Shears, Scissors, Bent Trimmers, Bankers' Shears, Button hole Scissors and Dental Snips. Also the best Steel-lined Straight Trimmers for the money in the market "New England." We pay particular attention to hard-ning and tempering our goods, and they can be relied on for possessing superior cutting qualities. A fair trial of our goods will convince of their merit.

SAMUEL A. HAINES, General Agent, No. 88 Chambers Street, NEW YORK.
Send for Illustrated Catalogue, with discount. Factory, NORFOLK, CONN.

HOWE BROTHERS & HULBERT,

West Winsted, Conn.,

Manufacturers of

SHEARS

AND

SOLID FORGED STEEL

Scissors, Corkscrews and Hardware Specialties.

The "Acme" Lawn Mower

AND THE

Improved "Easy" Lawn Mower.

The only practical *Forward-Cut Roller Mowers* ever on the market, combining Durability with extreme Light Weight.

Style of Medium-Size "Easy."

Blair Mfg. Co.

Springfield, Mass.

CHAMPION IRON FENCE CO.,

KENTON, OHIO.

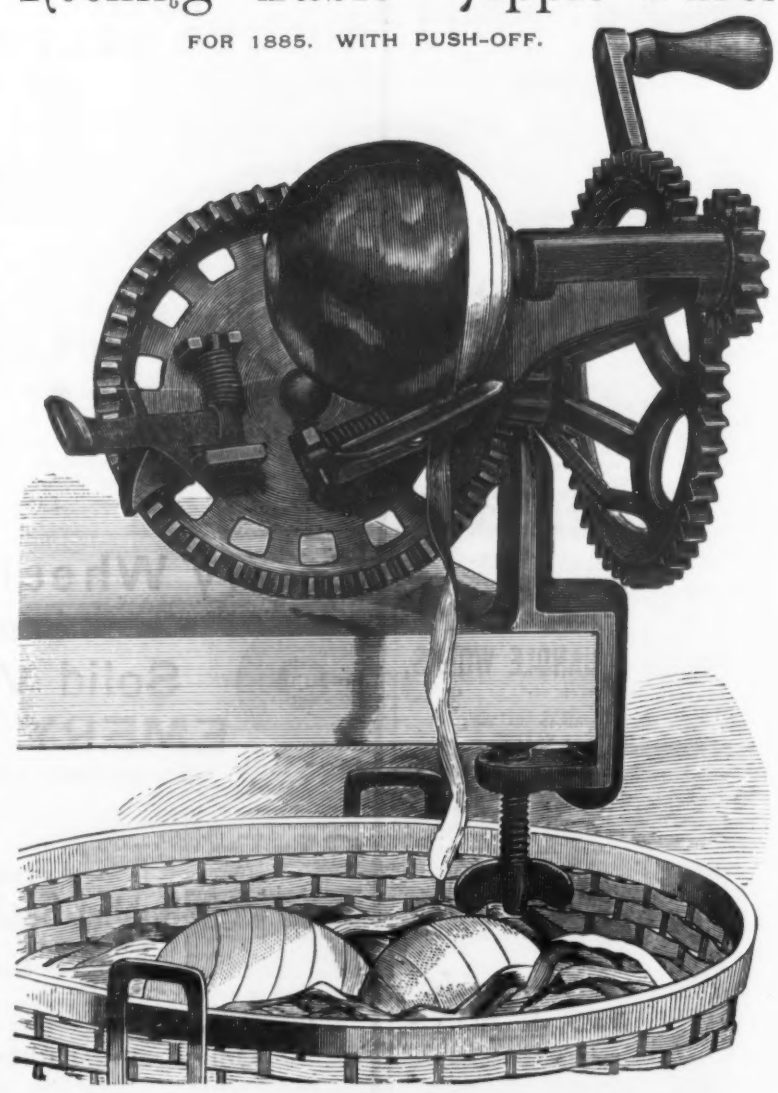
Largest Iron Fence and Railing Works in U. S.

SPECIALTIES—Iron Stairs and Jail Work, Builders' and Ornamental Iron Work, and the only manufacturers of Malleable Iron Cresting, guaranteed against breakage: also manufacturers of the Celebrated Ohio Champion Iron Force and Lift Pumps. Send for 150-page Catalogue.

HUDSON'S IMPROVED

"Rocking Table" Apple Parer

FOR 1885. WITH PUSH-OFF.



The Livingston Horse Nail Co., Sole Agents,

104 READE STREET, NEW YORK.

THE PARAGON PRUNING SAW,

WITH Convex and Concave Cutting Edges.

Patented April 1st, 1884.

THRUST CUT ON THE CONVEX EDGE. DRAW CUT ON THE CONCAVE EDGE.

A Fair Trial will Demonstrate that this is the best DOUBLE-EDGED SAW for Trees or Vines.

WHEELER, MADDEN & CLEMSON, Middletown, N. Y.

VIRGINIA NAIL AND IRON WORKS COMPANY,

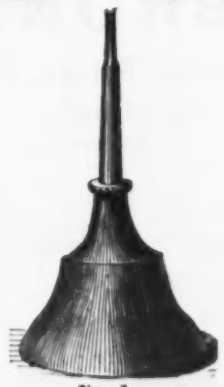
LYNCHBURGH, VIRGINIA.

NAILS and **Bar Iron** of Superior Finish, made exclusively from Pig Iron.

Patented Articles of Malleable Iron.

Hammer's Malleable Iron Oilers.

Three Sizes. *Nos. 1 2 & 3.*



No. 1.

Hammer's Adjustable Clamps.
Hammer's Mall. Iron Hand Lamps.
Hammer's M. I. Hanging Lamps.

NEW pattern Heavy Screw Clamps; strongest in the market.

For sale by all the principal Hardware Dealers

Send for Price List.

Malleable Iron Castings

of superior quality, and Hardware Specialties in Malleable Iron made to order.

HAMMER & CO.,

BRANFORD, CONN.

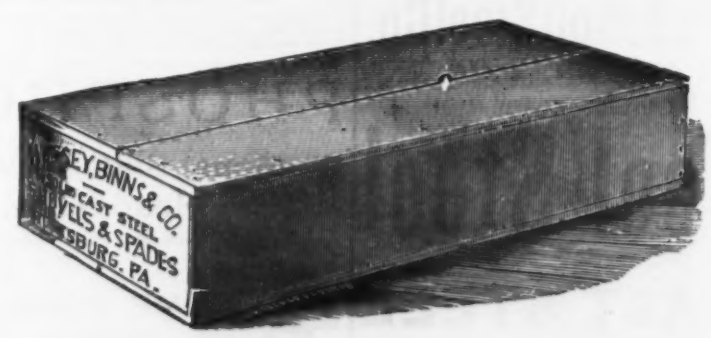
"PLAIN WORDS ABOUT

PATENTS"

Free to Inventors and Manufacturers. E. B. STOCKING, Atty., Washington, D. C. *Please mention this Paper.*

The T. H. Bullock

BELLOWS The Best for the Money. Cleveland, Ohio. **FORGES**



One Dozen (Box), No. **820**, Opened Ready for Sale in Store.

PRICES QUOTED ON APPLICATION.

HUSSEY, BINNS & CO.

(LIMITED),

PITTSBURGH.

BRANCH OFFICE:

97 Chambers Street., New York.

E. A. BOLMES, Manager.

TABLE III.—*Stocks of Pig Iron Held by Makers and in Warrant Stores in the United Kingdom at June 30, 1885, Compared with Those at June 30, 1884.*

District.	Total stocks of pig iron at June 30, 1885.	Total stocks of pig iron at June 30, 1884.	Increase at June 30, 1885.	Decrease at June 30, 1885.
	Tons.	Tons.	Tons.	Tons.
Cleveland	406,125	269,899	136,226	.....
Scotland	601,479*	589,132*	12,347	.....
West Cumberland	126,310	112,600	13,710	.....
Lancashire	142,986	139,920	3,066	.....
South Wales	82,943	62,930	20,013	.....
South Staffordshire	23,950	46,211	3,549	22,661
Worcestershire	19,486	15,937		
North Staffordshire	74,836	57,350	17,486	.....
Derbyshire	34,104	26,185	7,919	.....
South and West Yorkshire	70,834	52,854	17,980	.....
Northamptonshire	22,100	21,200	900	.....
Lincolnshire	28,748	10,400	18,348	.....
Shropshire	12,818	15,075	.....	2,257
North Wales	4,430	2,400	2,030	.....
Notts, Leicestershire, &c	17,580	3,250	14,330	.....
Totals	1,068,729	1,425,343	.....	.....

Net increase of stocks during the half-year, 243,386 tons.

* Pig iron in Connal's stores only. At the end of 1884 there was an additional 241,577 tons stored in makers' yards.

	Tons.
The stock of pig iron* on December 31, 1884, was	1,567,890
The production of pig iron during the first half of 1885, was	3,807,095
Total	5,374,985
Deduct stock* at June 30, 1885	1,668,729
Total consumption of pig iron to June 30, 1885	3,706,256
Against a consumption to June 30, 1884, of	3,980,791
Decrease	274,535

* Makers' stocks in Scotland not included, being unknown at June 30

Production of Bessemer Steel Ingots in the United Kingdom During the Half-Year Ending June 30, 1885, Compared with That for the Corresponding Half of the Previous Year.

District.	Half-year ending June 30, 1885.	Half-year ending June 30, 1884.	Difference in 1885.
	Tons.	Tons.	Tons.
South Wales and Monmouth	191,581	221,316	— 29,735
Northeast Coast	145,718	164,475	— 18,757
Lancashire, Cheshire, &c	88,917	81,141	
West Cumberland	93,056	88,851	+ 7,776
Sheffield district	104,500	82,060	+ 4,205
Totals	623,772	637,843	+ 22,440 — 14,071

Production of Bessemer Steel Rails in the United Kingdom During the Half-Year Ending June 30, 1885, Compared with That of Corresponding Period of 1884.

District.	Half-year ending June 30, 1885.	Half-year ending June 30, 1884.	Increase or decrease in 1885.
	Tons.	Tons.	Tons.
South Wales and Monmouth	109,124	182,271	— 73,147
Northeast Coast	70,502	105,326	— 34,824
Lancashire, Cheshire, &c	41,845	45,127	— 3,282
West Cumberland	67,830	68,328	— 498
Sheffield district	44,396	25,363	+ 19,033
Total	333,697	426,415	— 92,718

Production of Bessemer Steel Blooms, Billets, Plates, Angles, &c., During the First Half of 1885, as Far as Returns have been Received.

District.	Plates.	Angles.	Blooms for sale.	Billets for sale.
	Tons.	Tons.	Tons.	Tons.
South Wales and Monmouth	1,146	.....	6,395	271
Northeast Coast	7,866	.....	68,519	7,941
Lancashire, Cheshire, &c	1,655	201	3,250	28,889
West Cumberland	3,586	.....	.....	1,187
Sheffield district	11,868	.....	7,500	7,918
Total	26,121	201	85,664	46,301

THE HARDWARE TRADE.

At Birmingham the expansion of business continues, though very gradually and partially, and, as there have been a good many interruptions or curtailments of production lately, orders are accumulating. In the export department a marked improvement is noted in the demand, both from Egypt and the Cape. India is taking considerable quanties of railway material and mining material, but general trade in that part of the world appears to be momentarily dull. Although the advanced Russian tariff is making itself felt on our trade with the Czar's dominions, there is no slackening in the demand from other Northern markets, and for Germany as well as Scandinavia there is a considerable amount of work under execution. At Wolverhampton and Willenhull the brass-padlock trade is in a better condition than most of the other branches, and the firms engaged in this line are generally active, if not, indeed, busy. East Indian orders are of most account, and next to these rank the Australian. The leading makers of rim, mortise, dead and drawback locks are more active. Railway-carriage locks on a new principle are among the novelties in course of production. At Sheffield there is not any appreciable change in the local business situation. Some of the "country" houses are disposed to speak more favorably of the home trade, and anticipate still better things before the month is out. But in the main volume of business there is no perceptible rise; transactions in the iron and steel markets are comparatively few and free from fluctuation in quotations. Foreign and colonial orders exhibit no special improvement in any direction.

THE BOARD OF TRADE RETURNS

for July, to which I briefly alluded last week, show that the imports were of the value of £31,847,616, against £34,320,066 in July, 1884. The exports were valued at £19,173,846 last month, as compared with £21,039,922 in July last year. The principal items of export to the United States were as follows:

Articles.	Month of July, 1885.	Month of July, 1884.	Month of June, 1885.
Alkali, cwt	260,767	146,092	199,473
Hardware and cutlery, £	31,397	34,463	21,787
Iron—Pig, tons	6,973	12,767	10,374
Bar, angle, rod, &c., tons	231	191	285
Railroad, all, tons	.....	4,162	.....
Hoops, sheets, plates, &c., tons	2,021	1,727	5,878
Tin plates, tons	21,616	23,399	18,181
Cast or wrought, tons	138	62	131
Old, tons	2,158	2,101	926
Steel, unwrought, tons	1,131	1,127	860
Lead, all sorts, tons	1	50	52
Steam engines, £	4,281	3,455	1,971
Other machinery, &c., £	26,098	23,399	19,807
Tin, unwrought, cwt	200	1,029	42
Special return—Steel rails, tons	.....	4,135	.....

TIN PLATES.

In London my report of last week holds good for this week, inasmuch as buyers and sellers are still holding their hands. Makers are reported to be keeping together very well, and to be maintaining a very firm front. I hear of some of the larger buyers having sent to some of the works and placed orders for very fair quantities at an advance on the price they have hitherto offered. On Saturday, August 15, the second stoppage of the works was entered upon, and it is expected that when that has been tided over the market will assume a more decided character. I quote ordinary IC cokes: Buyers, 14/ and sellers 14/6, f.o.b. Liverpool. At Liverpool the market continues quiet, but the tone is pretty firm as to prices. The shipments to the States and Canada during the last month total up a fair average, viz., about 360,000 boxes, and it is understood that the stocks in the various depots have been somewhat considerably drawn upon The conclusion is therefore that there will be a period of greater activity during the coming weeks, and more especially so when it is seen that next week will be rigorously observed as a close holiday by the works in the combination to reduce the make. The inquiries during the week have not been very numerous, and fewer orders have been placed—as usual, Bessemer and Siemens steel plates in coke grades coming in for the lion's share—and there are no changes in the figures for certain brands of coke tin primes. The inquiries for coke and charcoal tins are not by any means as numerous as they were, and the same may be said about ternes. Coke tin wasters are in poor demand. It is understood that there are some second-hand sellers who are willing to shade the 14/ figures slightly.

Incandescent Lamps on Railroads.

For several months past the Pennsylvania Railroad Company have been lighting nine of their cars with incandescent electric lamps. The electricity is produced by Brush storage batteries, which are charged once a week. The storage battery is carried underneath the cars in boxes built to receive them—one-half being placed on each side. Each car requires six trays of four cells each. The trays are made so that the simple process of putting the trays in position completes the electric circuit. The battery when charged has an electromotive force of 45 volts, and when the electromotive force has fallen to 39 volts the battery is recharged. The batteries are charged at the depot in Jersey City by a 16-light Brush machine. In charging, the ordinary Brush manipulator, without the register, is employed. Swan lamps consuming 1.1 ampères have been used almost exclusively, although Stanley-Thomson's lamps have been tried. The parlor cars require 10 16 candle-power lamps, while the passenger cars require but six. The lamps are all in parallel circuit and so arranged that one-half may be used at a time. The wires are led through a clock mechanism which registers the time they have been used. By an ingenious mechanical device the clock is made to move half as fast when the switch throwing off half the lamps is turned. Altogether some 17 batteries of 24 cells each are in use, and as yet only one cell has been disabled. As to loss of efficiency due to deterioration, no tests have been made. Although the lamps are probably much less than 16-candle-power, it is probable that their life is less than that of those used in buildings, because of the jarring to which they are subjected. It is claimed that the cost of lighting the cars by the incandescent lamp compares favorably with that of lighting by compressed gas. During the heavy storms which prevailed the first week of August 48 cells of these storage batteries did the work on a telegraph line which 500 gravity cells failed to accomplish.

As an illuminating agent gas has nearly reached its possible perfection, and very little more can be done to improve its light-giving power. A wider field of usefulness, however, is at present comparatively unworked, and with inducements such as could, and in some cases are, readily offered by gas companies, the consumption for heating purposes generally should experience a rapid and appreciable increase. The subject has been taken up an almost endless number of times, and, though the conveniences and advantages of an extensive introduction of cheap gas supplies have been ever prominent, very little progress can be recorded. Why this is so is best known to those primarily concerned—the gas companies—and whatever be the reason it must be one other than inability, unless at pecuniary sacrifices. That this is true has been conclusively demonstrated, notably in some of the English manufacturing districts, where gas for heating is used on an extensive scale. The time is unquestionably being looked forward to when a more general use of gas will solve many of the difficulties attending the use of coal, among others the smoke problem, which is daily gaining in importance, and in which, in some places, at least, a reduction of the nuisance within the limits of toleration may be effected. Gas manufacturers now have every opportunity of showing what they can do, and if they were but to make an effort to supply cheap heating gas there would be no lack of encouragement and appreciation.

The Kilbourne & Jacobs Mfg. Co.

COLUMBUS, OHIO, U. S. A.,

New York City Office, 100 Chambers St.,

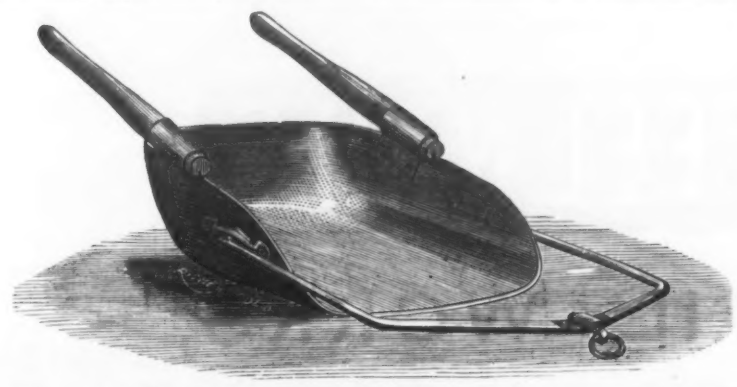
MANUFACTURERS OF

ROAD SCRAPERS, EXCAVATORS, TRUCKS & WHEELBARROWS

OF ALL KINDS.

THE "COLUMBUS" ROAD SCRAPER

Is pressed from ***one solid sheet of heavy steel,*** and is the strongest and most durable Road Scraper made. Used in making railroad embankments, excavating for canals, ditching, &c. The largest contractors in the United States have used them exclusively for years.



THE "COLUMBUS" SOLID STEEL ROAD SCRAPER.

We make three sizes of these Scrapers. No. 1, capacity, 7 cubic feet of earth. No. 2, 5 cubic feet of earth. No. 3, 3½ cubic feet of earth. Furnished with or without ***solid steel shoes*** or ***runners,*** as desired. The bails are of refined iron, with strong and perfect working swivels. Bowls nest and handles crate compactly for shipment.

RAILROAD OR CANAL BARROW.

With Jacobs' Patent Wood Wheel. Bent Tray, full sized, planed and well finished.

RAILROAD OR CANAL BARROW.

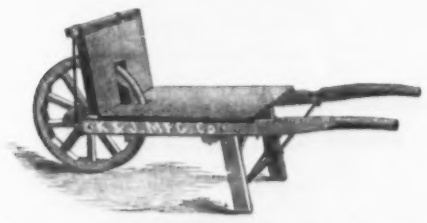
Same as above, except with Jacobs' Patent Steel Spoke Wheel.

ORE OR MORTAR BARROW.

With Jacobs' Patent Wood Wheel. All hardwood. Bowl ***dovetailed*** together and firmly nailed.

OPEN BOTTOM BRICK BARROW.

With Jacobs' Patent Wood Wheel. Folds for shipping same as Garden or Farm Barrow.



TIGHT BOTTOM BRICK BARROW.

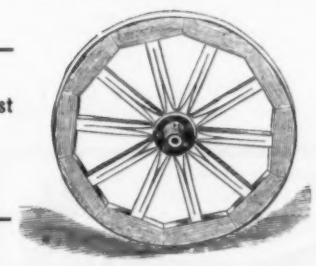
Same as above except having Closed Bottom. We furnish either style of these Barrows with ***Steel Spoke Wheel*** when specially ordered.

WOOD OR BARK BARROW.

Wheel same as above. Body and Dash strapped with heavy iron. Well finished. For Wood, Bark, Bales, Boxes, &c.

JACOBS' PATENT WHEELS.

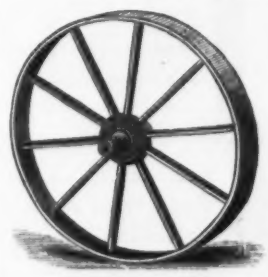
The Strongest and Lightest Running Wheel known.



It will not Shrink in any Climate. The Tire Cannot Come Off.

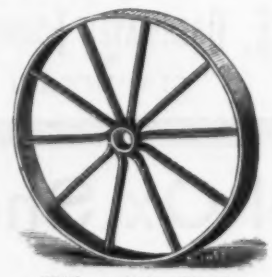
It has TEN spokes of thoroughly seasoned wood, and each spoke is supplied with a separate felloe. The hub is of chill cast iron, and riveted firmly to the spokes, which are so cut as to counterbrace each other. The spokes are keyed from the center after the tire is shrunk on. *This wheel will not shrink or give in any weather or climate, and the tire cannot become loosened.* An oil hole is drilled into the hollow washer of the hub, and the oil distributes itself along the bearings while the wheel is in motion. The wheel revolves on a fixed shaft or axle, which passes through the end of the handle, and is a brace to the barrow. This wheel cannot be broken or weakened by ordinary usage, and will last a lifetime. It is well painted. ***We guarantee it superior to any other WOOD WHEEL.***

JACOBS' PATENT STEEL SPOKE WHEELS.



Wheel Complete.

Wrought-Iron Tire. Steel Spokes.

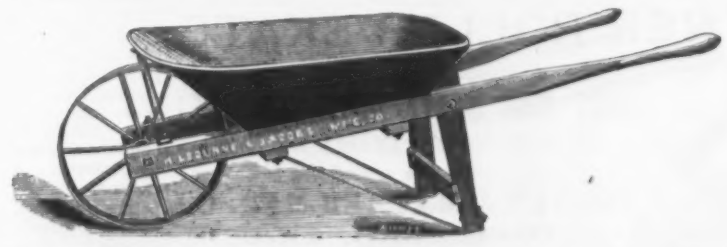


Without Hub—Showing Construction.

These wheels are so constructed—having spokes tightened from center—that the tire cannot come off or the spokes become loosened. Hubs hardened on inside. Oil hole in hub. Diameter of wheel, 17 inches. Wrought-iron tire, 1½ inches wide. ***Steel*** spokes.

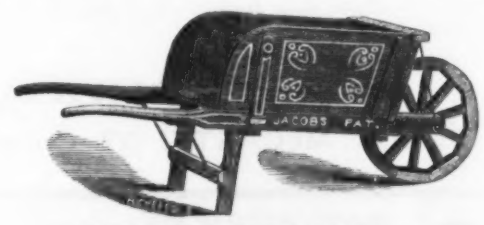
The Best Barrow Wheel Manufactured.

The above cut shows the manner in which our ***Railroad, Ore, Wharf*** and ***Steel Tray Barrows*** are packed for shipment. This insures lowest rate of freight, and they can be quickly and easily set up by following the simple instructions sent with each half-dozen Barrows. In this shape Barrows require much less room for storage, and can be as easily set up as if received with Tray fastened to Frame.



"COLUMBUS" STEEL TRAY WHEELBARROWS.

The Tray is stamped from ***one solid plate of steel.*** Steel Spoke Wheels 17 inches in diameter. Wrought-Iron Tire, 1½ inches wide. These Barrows, while much ***lighter*** than those having iron frames, are ***equally strong*** for all practical purposes, and will stand the roughest usage. Two sizes. No. 1, capacity 3½ cubic feet, for Earth, Sand, Ore and Foundry use. No. 2, capacity 5 cubic feet, for Coal, Manure, Sawdust, Ashes, &c. Pack for shipment same as R. R. Barrow.



GARDEN OR FARM BARROW.

Set Up.

Double Frames and so constructed that by simply removing one bolt (the axle) and two nuts they can be folded flat down (see cut) and shipped at lowest rate of freight. Three sizes.

Folded for Shipping.

STRAIGHT HANDLE STONE BARROW.

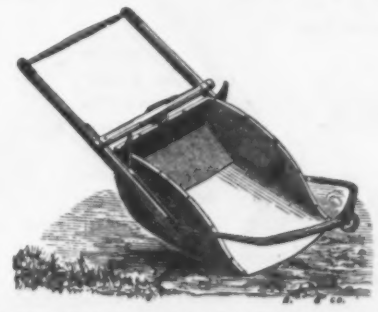
With Jacobs' Patent Wheel. Strong, well-made, iron strapped over bottom and bolted together. For stone or pig iron, &c.

BENT HANDLE STONE BARROW.

With Jacobs' Patent Wheel. 17¾-inch tire. Well ironed and bolted. Extra strong.

STEEL BOTTOM STONE BARROW.

Bottom and Dash formed of ***one plate of steel, one-fourth of an inch thick.*** Steel Spoke Wheel. The strongest and best Stone Barrow manufactured. Very durable.



THE AUTOMATIC REVOLVING ROAD SCRAPER.

Three sizes. 30, 33 and 36 inch. Both Steel and Wooden Bottom.

ILLUSTRATED CATALOGUE AND PRICES FURNISHED ON APPLICATION.

MECHANICAL.

Rotary Locomotive Engines.

It has been said, very suggestively, that there is scarcely an engineer of much experience who has not designed at least one rotary engine and one balanced valve, both of which he has afterward abandoned. It is therefore not surprising to note that rotary locomotive engines are again being spoken of, a correspondent in a recent issue of the *Railroad Gazette*, Mr. J. M. Goodwin, referring to them in an interesting manner. Mr. Baldwin, the founder of the well-known Baldwin Locomotive Works, was probably the first to conceive the idea of using a rotary engine for locomotive purposes, connecting it directly with the main driving-axle. For a long time the matter so entirely occupied his mind that he neglected projects for improving the reciprocating engine, devoting his attention to the "rotary" which was, in his mind, to supersede the other form. He spent much more money than he could well spare in experiments aiming at the production of an effective rotary locomotive engine, but finally abandoned the idea without having accomplished his object. There are many persons, some of whom are now connected with the Baldwin Works, who have personal knowledge of these experiments.

Since the time of Mr. Baldwin's work in this line the idea of applying a rotary engine to the driving of a locomotive has experienced independent development in several, and perhaps many, minds, but a better one, or one equally as good for the purpose in question as the engines now in use, has not yet appeared. This fact, however, Mr. Goodwin holds, argues but little, except that those attempting to produce such a rotary engine have persistently followed the lead of the earliest inventors in the rotary line, and have directed their efforts to the overcoming of certain inevitable and practically insuperable difficulties; hence the persistent production of engines, each having the constitutional weaknesses, in consequence of which rotaries hitherto produced cannot compete successfully with the present locomotive engine. The inefficiency of rotaries heretofore brought out, Mr. Goodwin therefore maintains, affords no ground for arguing that an efficient rotary is an impossibility. In fact, he claims that a rotary may be made that will perform the work demanded of a locomotive engine, and that, while largely more effective, it will cost much less, both as to prime cost and maintenance, than the engines now used. Mr. Goodwin is unquestionably correct in asserting that most modern designs of rotary engines are slightly changed reinventions, and that their common failure is in a measure attributable to this circumstance. As a matter of fact, the ephemeral character of rotary engines is due generally, even when they are well constructed, to mechanical difficulties which may be summed up in the statement that so far no means have been found of packing the pistons so that they will work without excessive friction, be steam-tight and durable. Mr. Goodwin's further claim, therefore, to a new engine of this class, in which this difficulty as well as several others of importance have been successfully overcome, is interesting, to say the least, and further particulars would no doubt be welcome to many.

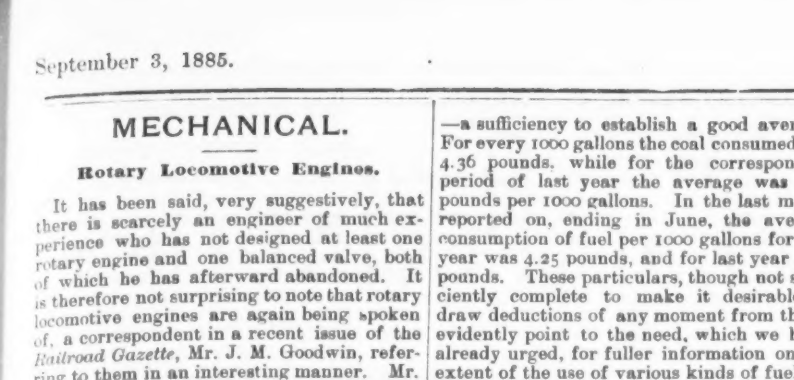
Calorific Value of Fuels.

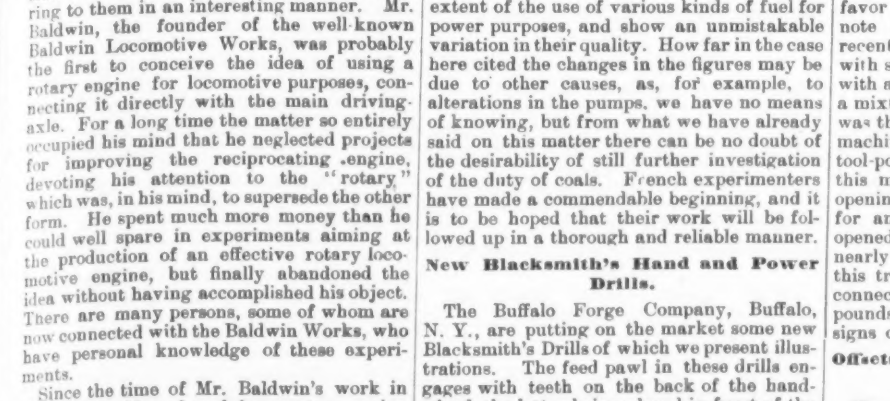
Directly bearing upon the subject of the calorific value of different coals, to which attention has been directed for several months past, a series of returns made to an English water corporation is interesting. These returns, which give the relative pumping power of coals, show that over a period of about five months this year more than 1,154,000,000 gallons of water were pumped —a sufficiency to establish a good average. For every 1000 gallons the coal consumed was 4.36 pounds, while for the corresponding period of last year the average was 4 56 pounds per 1000 gallons. In the last month reported on, ending in June, the average consumption of fuel per 1000 gallons for this year was 4.25 pounds, and for last year 4.54 pounds. These particulars, though not sufficiently complete to make it desirable to draw deductions of any moment from them, evidently point to the need, which we have already urged, for fuller information on the extent of the use of various kinds of fuel for power purposes, and show an unmistakable variation in their quality. How far in the case here cited the changes in the figures may be due to other causes, as, for example, to alterations in the pumps, we have no means of knowing, but from what we have already said on this matter there can be no doubt of the desirability of still further investigation of the duty of coals. French experimenters have made a commendable beginning, and it is to be hoped that their work will be followed up in a thorough and reliable manner.

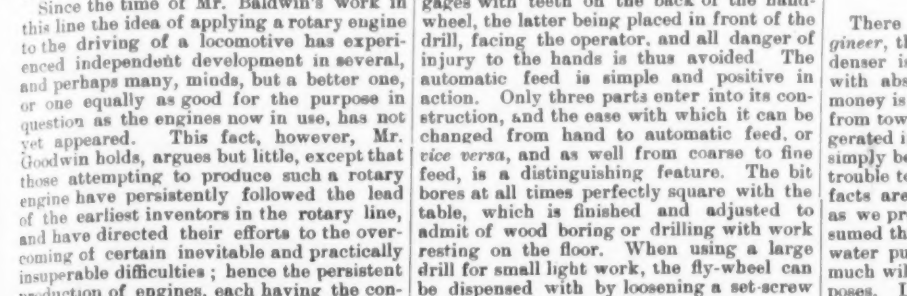
New Blacksmith's Hand and Power Drills.

The Buffalo Forge Company, Buffalo, N. Y., are putting on the market some new Blacksmith's Drills of which we present illustrations. The feed pawl in these drills engages with teeth on the back of the hand-wheel, the latter being placed in front of the drill, facing the operator, and all danger of injury to the hands is thus avoided The automatic feed is simple and positive in action. Only three parts enter into its construction, and the ease with which it can be changed from hand to automatic feed, or *vice versa*, and as well from coarse to fine feed, is a distinguishing feature. The bit bores at all times perfectly square with the table, which is finished and adjusted to admit of wood boring or drilling with work resting on the floor. When using a large drill for small light work, the fly-wheel can be dispensed with by loosening a set-screw and releasing the intermediate gear.

The drills are made in five sizes and 10 different styles with and without emery-wheels. They are arranged to be worked either by hand or power, and will be found convenient and efficient by blacksmiths and machinists.







NEW BLACKSMITHS' HAND AND POWER DRILLS, BUILT BY THE BUFFALO FORGE CO., BUFFALO, N. Y.

Asbestos-Packed Cocks.

On November, 13, 1884, we published an illustrated description of some asbestos-packed cocks, which at that time were just being introduced into this country, and since then have attracted a good deal of attention and have given remarkably good results. The shells of the cocks, as will be seen by referring to our description at that time, were furnished with several longitudinal dovetailed grooves, packed with vulcanized asbestos in such a way that the plug, when put in place, found a bearing only on the asbestos without touching the metallic walls. Top and bottom rings of asbstos were also introduced, making altogether a most serviceable and efficient form of cock. Improvements effected within the past year have further added to its utility.

With plug cocks as ordinarily constructed annoying difficulties are often encountered. Thus the expansion of the plug causes it to bind when opened under steam, owing to the large metal surfaces making the opening and closing difficult and uncertain. A small amount of grit is sufficient to cause abrasion, and the cutting soon destroys the surfaces causing leakage. With the asbestos-packed cock, however, there is sufficient space between the plug and shell to allow for expansion, which is taken up by the elasticity of the asbestos. No metal rubbing surfaces are in contact, and the disadvantages incident to their use are thus avoided. The regular asbestos-packed cocks as now made are guaranteed to stand a steam pressure of 300 pounds per square inch, but special cocks are turned out and guaranteed to resist 2000 pounds pressure. Others again are made specially for high temperatures, such as those of highly superheated steam. These cocks have also been used for ice machines and in many other places severely testing their good qualities. In all cases, we believe, uniform satisfaction has resulted.

The cocks are now being put on the market by Messrs. Fairbanks & Co, 311 Broadway, New York, and are meeting with great favor wherever used. It is interesting to note here that one of these cocks was recently tested at the New York Navy Yard, with suggestive results. The cock was fitted with a standing-pipe at each end, filled with a mixture of boiler sediment and water. It was then secured in the jaws of a slotting machine, and the handle connected to the tool-post making 27 strokes per minute. In this manner it was worked for 11 hours, opening and closing 17,870 times. Taking for an average that the cock would be opened 20 times per day, this would give nearly 2½ years' wear in gritty water. After this trial it showed no leakage, even when connected with a steam-pipe under 45 pounds pressure. When taken apart no signs of wear were visible.

Offsets to Economy in Condensing Engines.

There is reason to believe, says the *Engineer*, that in many cases the use of a condenser is attended, not with economy, but with absolute loss—that is to say, more money is paid for condensing water supplied from town mains than it is worth. An exaggerated importance is attached to a vacuum simply because steam users will not take the trouble to ascertain what one is worth. The facts are, however, very easily dealt with, as we propose to show here. It may be assumed that, whatever the quantity of feed-water pumped into the boiler, 20 times as much will be required for condensing purposes. Less may, of course, be used; this is a practical every-day allowance. Taking the case of an engine indicating 100 horse-power and using 20 pounds of steam per horse per hour—an unusually favorable condition—we find that the condenser will need 400 pounds of water per horse per hour, or $400 \times 100 = 40{,}000$ pounds per hour, or 4000 gallons. Taking the price at 6d. per 1000 gallons, this represents an expenditure of 2/ an hour. Taking coal at 10/ a ton, it follows that the sum paid for condensing water would purchase 4 cwt. of coal, or no less than 4.48 pounds of coal per horse-power per hour. We need scarcely stop to point out that no condenser is worth this. Even with coal at 20/ per ton, the money for condensing water would represent 2 24 pounds per horse per hour—far more than a condenser can save. We may deal with the question from another point of view, and determine for any particular case whether it is or is not worth while to purchase condensing water. In order to give the condenser every advantage in our calculations, we shall assume that the effective vacuum is equivalent to 12 pounds on the square inch. Let us take the case of an ordinary mill engine with a cylinder 40 inches in diameter, and a piston stroke of 5 feet, revolutions 50 per minute. The area of a 40-inch piston is, in round numbers, 1256 square inches, and

$$\frac{1256 \times 12 \times 500}{33{,}000} = 228.3\text{-horse-power}$$

obtained by the vacuum. Here 12 is the number of pounds pressure gained by condensing, and 500 the piston speed in feet per minute. If we take the average effective steam pressure at 36 pounds on the square inch, then the engine would, without a condenser, indicate 685 horse-power. With an initial total pressure of 115 pounds, and a fivefold expansion, the average pressure would be slightly in excess of 36 pounds on the square inch. To put all this in other words, if we work an engine of the size stated without a condenser it will indicate 685 horse-power; if we apply a condenser it will indicate 913 horse-power. The gain is 228 horse-power. A condensing engine of the type named ought not to need more than 2.5 pounds of good coal per horse-power per hour, or 3 pounds of such stuff as is commonly used in mills. The total consumption will consequently be $913 \times 3 = 2737$ pounds per hour, or for a day of 10 hours 27,390 pounds, or, say, 12.25 tons per day, costing, at 10/ a ton, £6. 2/6. If the condenser is suppressed, the total consumption of fuel will remain the same, but the power of the engine will be reduced, and the consumption of fuel will then be 4 pounds per horse per hour, instead of 3 pounds. That is to say, the cost of each horse-power will be augmented by the value of 1 pound of coal per hour, or for 685 horse-power very nearly 3/. From this it follows that condensing water must not cost more than 3/ an hour, or there will be a dead loss incurred by its use instead of a gain. Allowing as before 40 gallons of condensing water per horse per hour, we have $913 \times 40 = 36{,}520$ gallons per hour, so that at least 1014 gallons must be had for 1d. before it will pay to use a condenser. We need scarcely say that town water is rarely, if ever, supplied at anything approaching this rate. It may be said that no one dreams of using town water for engines indicating nearly 1000 horse-power. This does not affect the question, however, in any way; all that we have to do is to divide the power we have assumed by 10, or 100, or any other number. The facts hold good for engines indicating 91.3 horse-power or 9.13 horse-power. No matter what the dimensions of the engine, water must be had at the rate of 1000 gallons for 1d. before it will pay to use a condenser. If the price of coals is less than 10/ per ton, then the water must be less than 1d. per 1000 gallons. If it is more than 10/ a ton, then the cost may be more than 1d. per 1000 gallons. Broadly stated, when coal is 10/ a ton, it will not pay to use a condenser if the condensing water costs more than 1d. per 1000 gallons.

We expect to hear it urged that this only applies to economical engines of the better class, and that if engines using 10 pounds or 12 pounds of coal per horse power per hour were dealt with the result would be very different. This is not the case, save in a restricted sense. The gain to be had from a condenser is a very well-defined quality. The only factor that can vary is the relation which the power obtained from the condenser bears to the total power. A very bad steam engine would use steam of, say, 51 pounds total pressure without expansion, giving, as before stated, 36 pounds effective pressure throughout the whole stroke, and would burn, say, 12 pounds of coal per horse per hour, instead of 3 pounds. The saving to be effected by a condenser under the same circumstances would be represented by 4 pounds of coal, instead of 1 pound, for obvious reasons. But it must not be forgotten that the quantity of condensing water needed would be augmented in about the same proportion This may not appear to be the case at first sight, but the truth of the statement can easily be proved. Let us suppose that the boilers of our economical engine, using 20 pounds of steam per hour per horse, evaporate a little under 7 pounds of water per 1 pound of coal. This is a very indifferent performance, and the boilers on very bad engines seldom do less. If the case of the engine burning 12 pounds of coal per horse per hour, the engine will use $12 \times 7 = 84$ pounds of steam per horse per hour, and to condense this $84 \times 20 = 1680$ pounds, or 168 gallons, instead of 40 gallons per horse-power per hour, will be needed; so that, although the quantity of coal saved is four times as great in the case of the bad as it is in the case of the good engine, four times as much water is needed. The cost of water is absolutely fixed by the weight of steam to be condensed, other things being equal, and is entirely independent of the power exerted by the engine. This statement admits of only one qualification, namely, that the more effectively the steam is used in the cylinder the greater will be the quantity condensed in it by the performance of work, and the less the total heat transmitted to the condenser. But this circumstance, it will be seen, tells against the bad engine and in favor of the good engine.

It may be urged that in certain cases the condenser is worth all that it costs, because sufficient power could not be got out of the engine without it. This we are quite willing to admit, but the argument is quite beside the question under discussion.

Questions concerning the value of a condenser admit of being simplified in the following way: The great majority of Lancashire boilers evaporate between 8 pounds and 9 pounds of water per pound of coal. Taking the lowest figure as being nearest the average, we find that each pound of coal represents 16 gallons of condensing water. The consumption of coal per day in pounds has therefore only to be multiplied by 16 to give the number of gallons of condensing water required, and this, be it remembered, is quite irrespective of the efficiency of the engine. For each ton of coal burned 35,840 gallons of water must be supplied. These figures will no doubt be useful to many of our readers who ask us repeatedly how much water an engine of a stated power requires. Of course it will be understood that this is only a good "rule of thumb." One point remains for consideration. Very often condensing ponds are made at considerable expense, in order that the same water may be used over and over again. It is not difficult to see that in such cases the water is not got for nothing. The interest on the outlay on and rent of the the cooling ponds become factors in our calculations. Again, in not a few cases the water is pumped from wells of considerable depth, or from a river at a distance. Here the water obviously costs something. Furthermore, it is certain that the frigorific influence of the condenser on the cylinder represents dead loss of fuel. Our figures, too, show only that, when water is to be had at 1d. per 1000 gallons, nothing is lost by using it for condensing purposes In order that anything may be gained, it must cost less than this. Indeed, if the interest on the first cost of the condenser and air pump be counted, there will be a loss. Not a few of our readers will see that when very low average pressures, due to an early cut-off, are employed, what we have said must be taken with certain qualifications; but, reviewing the whole subject broadly, there can be no doubt that in very many cases condensing engines are employed when better results, in a pecuniary sense of the words, would be obtained with non-condensing engines.

The Reliance Alarm Guages.

The annexed engravings illustrate two new forms of alarm gauges brought out by Messrs. Wright, Berger & Co., of Cleveland, Ohio. They are free from complicated parts and are certain and positive in action. Detailed description is unnecessary, as the cuts are sufficiently explanatory in themselves. Fig. 1 represents a low-water alarm gauge, and Fig. 2 one which is intended to give warning when either the high or the low water line is reached. The whistle valves and connections are high and dry above the water, where they will not corrode or be interfered with by sediment. The multiplied leverage on the valve connections is so great that it is difficult for them to stick, The floats used in the gauges are made of hardened copper, and are warranted to retain their buoyancy and to never leak under any pressure. The steam and water openings are of ample size, to afford a free circulation and prevent clogging. The sediment chambers at the bottom of the gauges offer some important advantages, collecting and retaining any deposit and protecting the glass and working parts.

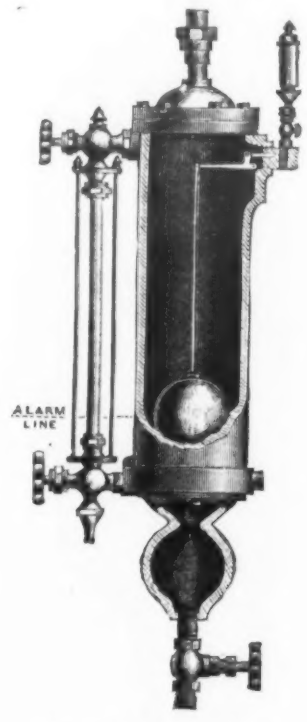


Fig. 1.—Low-Water Alarm Gauge.

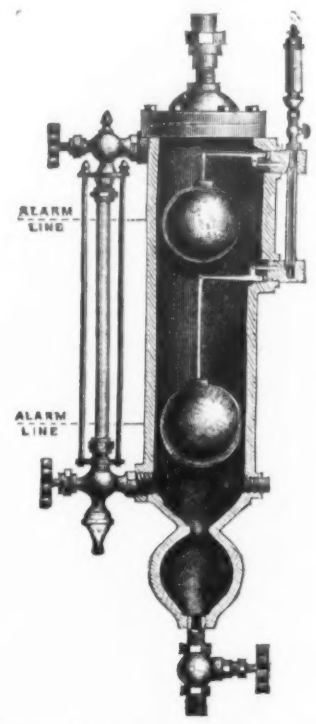


Fig. 2.—Combined High and Low Water Alarm Gauge.

THE RELIANCE ALARM GAUGES.

Liquid Fuel on the Pacific Coast.

Reports from the Pacific Coast direct attention to interesting developments in the liquid-fuel problem, extended trials having been made on some of the steamers of the Central Pacific Railroad Company. The most successful results have been obtained on the transfer boat Thoroughfare. Liquid fuel has been used on this boat for several months, the fuel being a residuum of petroleum after some of the lighter products have been refined out. It is described as being of about the consistency of molasses, and costing 5 cents a gallon. The Thoroughfare has a return-flue boiler. The freight and passenger boat Solano is also using this fuel, her boilers being of the locomotive type. Ordinary tank cars come aboard on the tracks on her deck, and the oil is drawn out into large tanks near the boilers, whence it is fed to the furnaces. In this case, however, less satisfaction has been obtained, owing very probably to the difference in character of the boilers. Experiments have before been made in San Francisco with various forms of liquid fuel for steam-raising, but all attempts were after a time abandoned. At the old Ætna Iron Works a number of different burners were used with crude oils. The Sutter Street Cable Railroad Company also used crude petroleum under their boilers, but in all these cases the usual difficulties seem to have been experienced in uniformly distributing the oil and in properly supplying it with air for combustion. In the light of more recent practice, however, these obstacles have lost much of their formidable character, and encouraging progress is constantly being recorded. Thus, very good work is being done in Southern Russia, and with the additional information afforded by further experiments in this direction there is every prospect of more fully realizing the many advantages of these fuels.

In connection with this it is interesting to note that the British Admiralty have authorized experiments to be conducted at Portsmouth, England, with the object of determining the value of liquid fuels for the use of ships of war. The particular system to be tried is one which, we understand, has been already used in the French navy. The coal oil is placed in a tank, where it is raised to a high temperature by steam from the boiler. It is then allowed to pass to the furnace doors, where it comes into contact with a jet of steam, and is driven into the furnace, which has been previously heated in the usual way. The experiments at Portsmouth will be confined to a torpedo boat of the largest type recently turned out by Messrs. Thornycroft. Should the trials prove successful, there can be little question of the superiority of the liquid fuel over coal for consumption in these small craft, quite apart from the question of economy. In the first place, no stoking will be required, thus enabling the number on board to be reduced, and, in the next place, there will be no necessity for the use of forced draft and the arrangement of fans by which it is produced. These are important advantages when the confined space below deck in torpedo boats is considered.

Office of

MANHATTAN HARDWARE CO.,

Manufacturers of

BUILDERS' HARDWARE AND SPECIALTIES.

READING, PENNSYLVANIA, U. S. A.

September 3, 1885.

Change to net prices of all goods made by us. Prices good for 20 days. Terms, cash in 15 days; no discount for cash. All goods delivered F. O. B. Reading. No charge for cases or cartage. No deviation until further notice will be made under any circumstances from the following net prices on orders less than $500. None but dealers in Hardware can get our goods. We sell no others. All goods warranted first-class or no sale. Catalogues sent with initial orders. Rates of freight same as from Philadelphia:

Locks and Latches, &c.

	Per doz.
No. 308, 4¼-inch Upright Rim Knob Locks, Tinned Iron Key, Polished Iron Bolts, 1 Tumbler, 12 changes, without Knobs, complete	$0.95
No. 311, do. do., with Stop	1.00
No. 312, do. do., " " Brass Key	1.32
No. 313, do. do. " " Brass Bolts and Key	1.65
No. 325, 4¼-inch Horizontal Rim Knob Locks, same finish as No. 311	1.02
No. 326, 4¼-inch Horizontal Rim Knob Locks, Brass Key	1.32
No. 327, 4¼-inch Horizontal Rim Knob Locks, Brass Bolts and Key	1.65
No. 216, Horizontal Knob Latch, 2½ x 3¼, Iron Bolts and Hub	.58
No. 218, Horizontal Knob Latch, 2½ x 3¼, Iron Bolts and Hub, Iron Slide Bolts, Flush Thumb-piece	.72
No. 450, Mortise Lock, 3½-inch, Polished Front, Flat Tinned Key	1.19
No. 67, Thumb Latches, Wrought-Iron Latch, Japanned, weight 6 pounds per doz	.21
No. 6, Pittsburgh Latch, weight 6 pounds per doz	.20
No. 217, 2½ and 3¼, Horizontal Rim Knob Latch, Polished Brass Bolt, Iron Hub, per doz	1.21
No. 219, 2½ and 3¼, Horizontal Rim Knob Latches, Polished Iron Bolts, Iron Slide Bolts, Brass Flush Thumb-pieces, per doz.	.85
No. 220, 2½ and 3¼, Horizontal Rim Knob Latches, Polished Brass Bolts, Brass Slide Bolts, Brass Flush Thumb-pieces, Iron Hubs, per doz	1.24
No. 225, 2½ and 3¼, Horizontal Rim Knob Latches, with Patent Reversible Polished Iron Bolts, Iron Hubs, without Knobs, per doz	.84
No. 227, 2½ and 3¼, Horizontal Rim Knob Latches, with Patent Reversible Polished Brass Bolts, Iron Hub, without Knobs, complete, per doz	1.13
No. 229, 2½ and 3¼, Horizontal Rim Knob Latches, with Patent Reversible Polished Iron Bolts and Iron Slide Bolts, Flush Thumb-pieces, without Knobs, per doz.	.98
No 230, 2½ and 3¼, do. do., with Brass Flush Thumb-pieces, per doz	1.08
No 231, 2½ and 3¼, Horizontal Rim Knob Latches, with Patent Reversible Polished Brass Bolts, Brass Slide Bolts and Brass Flush Thumb-pieces, without Knobs, per doz	1.49
No. 314, 4¼, Upright Rim Knob Locks, Polished Iron Bolts, with Patent Reversible Latch Bolt, per doz	1.17
No. 315, do. do., with Stop, per doz	1.22
No. 316, do. do., Brass Key, "	1.49
No. 317, do. do., Brass Bolts and Key, per doz	1.82
No. 330, 4¼ in., Horizontal Rim Knob Locks, Tinned Iron Key, with Stop, 1 Tumbler, 12 Changes. Patent Reversible Polished Iron Bolts, without Knobs, per doz	1.19
No. 331, do. do., with Brass Key	1.49
No. 332, do. do. with Brass Bolts and Key	1.82

Latches Nos. 225, 227, 229, 230 and 231, and Locks Nos. 314, 315, 316, 317, 330, 331 and 332, are made with our new Patent Reversible Bolt, patented Feb. 3d, 1885. To reverse Bolt, partly pull out and turn half around; it will spring back to position. We purpose to make these the cheapest and best ever offered to the trade. Will add a full line of Mortise and all other styles of Locks, with our new Patent Reversible Bolt, very soon. Our Locks are warranted as good as any make, and we will sell them at a moderate margin of profit. We prefer a steady business, which we always have, by offering first-class goods low. We make goods to sell, not to hold.

Broughton's Patent Burglar-Proof Sash Locks. Pat. Oct. 8, 1879.

Best and Cheapest Ever Made.	Per doz.
No. 1, Iron, Etruscan Bronze, Plain Lever, fine finish	$0.21
No. 2, Iron, Etruscan Bronze, Porcelain Knob, fine finish	.25
No. 6, Iron, Etruscan Bronze, Plain Lever, fine finish	.27
No. 7, Iron, Etruscan Bronze, Porcelain Knob, fine finish	.30
No. 10, Iron, Etruscan Bronze, Plain Lever, fine finish	.21
No. 15, Iron, Etruscan Bronze, Porcelain Knob, fine finish	.26
No. 20, Iron, Etruscan Bronze, Ornamental, Plain Lever, fine finish	.29
No. 25, Iron, Etruscan Bronze, Ornamental, Porcelain Knob, fine finish	.33
No. 30, Iron, Olympian Bronze, Ornamental, Polished, Plain Front, fine finish	.39
No. 35, Iron, Olympian Bronze, Ornamental, Porcelain Knob, fine finish	.42
No. 40, Iron, Olympian Bronze, Ornamental, Real Bronze Knob, fine finish	.78
No. 41, Iron, Olympian Bronze, Ornamental, Plain Lever, Extra Heavy, fine finish	.48
No. 42, Iron, Olympian Bronze, Ornamental, Porcelain Knob, fine finish	.54
No. 43, Iron, Olympian Bronze, Ornamental, Real Bronze Knob, fine finish	.78
No. 45, Iron, Ornamental, Nickel-Plated, Plain Lever, fine finish	.96
No. 50, Iron, Ornamental, Nickel-Plated, Porcelain Knob, fine finish	1.08
No. 51, Iron, Ornamental, Nickel-Plated, Brass Knob, fine finish	1.90
No. 52, Iron, Ornamental, Nickel-Plated, Inlaid Old-Gold finish, with Nickel-Plated Screws, Plain Lever	.93
No. 53, do., do., Porcelain Knob	1.58
No. 54, do., do., Real Bronze Knob	2.18
Handsomest design and finish ever offered.	
No. 55, Cast Brass, Polished, Plain Lever	1.14
No. 65, " " " Porcelain Knob	1.17
No. 70, " " " Brass Knob	1.42
No. 73, Ornamental, Bronze Metal Knob, with Screws, extra heavy	1.81
No. 80, Ornamental, Polished, Bronze Metal Knob, extra heavy, very fine	1.76
No. 85, Ornamental, Extra Polished, two Bronze Metal Knobs, very heavy, with Screws	1.91
No. 90, Ornamental, Polished, Extra Heavy, Porcelain Knob, with Screws	1.24
No. 95, Ornamental, Polished, very heavy, Bronze Metal Knob and Bronze Metal Screws	1.96
No. 100, Ornamental, Polished, two Bronze Metal Knobs, extra heavy, with Bronze Metal Screws	2.31
No. 53, Ornamental, Nickel-Plated, very heavy, Porcelain Knob, with Screws	1.96
No. 72, Ornamental, Polished, Cast Brass, Porcelain Knob, extra heavy, with Screws	1.88
No. 73, Ornamental, Cast, Polished Brass, extra heavy, Brass Knob	2.13
No. 155, Ornamental, Real Bronze Metal, Flat Lever, Extra Polish and Lacquered, with Real Bronze Screws	1.31
No. 165, Ornamental, Real Bronze, Bronze Metal Knob, extra heavy, Real Bronze Screws	1.51
No. 175, Ornamental, Real Bronze, two Bronze Metal Knobs, with Real Bronze Screws, very fine	1.81
No. 185, Ornamental, Real Bronze, very heavy, Bronze Metal Knob, with Bronze Screws	1.80
No. 190, Ornamental Real Bronze, very heavy, two Real Bronze Metal Knobs, with Screws	2.06
No. 210, Ornamental Iron, Iron Knob, fine finish, Etruscan Bronze	$0.60
No. 211, Ornamental Iron, Iron Knob, fine finish, Olympian Bronze	.75
No. 212, Ornamental Iron, Iron Knob, fine finish, Pompeii Bronze	.85
No. 213, Ornamental Iron, Iron Knob, Nickel-plated	1.25
No. 214, Ornamental Iron, Iron Knob, Nickel-plated, Rich Old Gold inlaid	1.50
No. 215, Ornamental Iron, Iron Knob, Nickel-plated, Pale Old Gold inlaid	1.60
No. 216, Ornamental Iron, Iron Knob, Nickel-plated, Fire Old Gold inlaid	1.75
No. 217, Ornamental Iron, Iron Knob, Nickel-plated, Crimson Old Gold inlaid	1.85
No. 218, Ornamental Iron, Iron Knob, Nickel-plated, Blue Old Gold inlaid	1.90
No. 219, Ornamental Iron, Iron Knob, Nickel-plated, Green Old Gold inlaid	1.95
No. 220, Ornamental Iron, Iron Knob, Nickel-plated, Copper Old Gold inlaid	2.00
No. 221, Ornamental Iron, Iron Knob, Nickel-plated, Lemon Old Gold inlaid	2.05
No. 222, Ornamental Cast Brass, Polished and Lacquered	2.65
No. 223, Ornamental Cast Brass, Nickel-plated	3.60
No. 224, Ornamental Real Bronze, Polished and Lacquered, very fine	3.00
No. 225, Ornamental Real Bronze, Silver-plated, very elegant ..... each.	5.00

All Sash Locks from Nos. 20 to 225 packed with Screws.

	Per gross.
No. 155, Sash Lifts, Ornamental, Bronzed, with Screws	$0.90
No. 160, Sash Lifts, Ornamental, Polished and Bronzed, with Screws	1.10
No. 162, Ornamental Sash Lifts, Polished, Pompeii Bronze finish, with Screws	1.16
No. 200, Ornamental Sash Lifts, Genuine Bronze Metal, with Bronze Screws, per doz.	.78

	Per doz.
3 in., Extra Tower and Barrel Bolts	$0.32
4 in. " " " "	.35
5 in. " " " "	.33
6 in. " " " "	.42
7 in. " " " "	.53
No. 20, 6 in. Chain Door Fasteners, Ornamental, with Screws, Bronzed	.90
No. 326, 6 in. Chain Door Fasteners, Ornamental, Polished and Bronzed, fine finish	.98
No. 425, 7 in. Chain Door Fasteners, Real Bronze Metal, with Screws	7.95

	Per doz. pairs.
No. 51, Chest Handles, Surface, extra heavy	$0.44
No. 53, " " " "	.60
No. 55, " " " "	.90

Brackets.

	Per doz. pairs.
No. 31, 4 x 5, Ornamental Store Shelf Brackets, Japanned	$0.44
No. 35, 5 x 6, Ornamental Store Shelf Brackets, Japanned	.62
No. 37, 6 x 8, Ornamental Store Shelf Brackets, Japanned	.81
No. 39, 8 x 10, Ornamental Store Shelf Brackets, Japanned	1.10
No. 40, 8 x 12, Ornamental Store Shelf Brackets, Japanned	1.29
No. 45, 4 x 5, Ornamental Store Shelf Brackets, Packed with Screws, Bronzed	.64
No. 50, 5 x 6, Ornamental Store Shelf Brackets, Packed with Screws, Bronzed	.90
No. 55, 6 x 8, Ornamental Store Shelf Brackets, Packed with Screws, Bronzed	1.05
No. 60, 8 x 10, Ornamental Store Shelf Brackets, Packed with Screws, Bronzed	1.77
No. 65, 8 x 12, Ornamental Store Shelf Brackets, Packed with Screws, Bronzed	2.23
No. 70, 4 x 5, Ornamental Library Brackets, Packed with Screws, Bronzed	.80
No. 75, 5 x 6, Ornamental Library Brackets, Packed with Screws, Bronzed	1.05
No. 80, 6 x 8, Ornamental Library Brackets, Packed with Screws, Bronzed	1.27
No. 82, 7 x 9, Ornamental Library Brackets, Etruscan Bronze, with Screws	1.64
No. 85, 8 x 10, Ornamental Library Brackets, Packed with Screws, Bronzed	2.07
No. 90, 8 x 12, Ornamental Library Brackets, Packed with Screws Bronzed	2.70
No. 95, 10 x 12, Ornamental Library Brackets, Packed with Screws, Bronzed	2.87
No. 100, 4 x 5, Ornamental Cabinet Brackets, Packed with Screws, Bronzed	.97
No. 105, 5 x 6, Ornamental Cabinet Brackets, Packed with Screws, Bronzed	1.23
No. 110, 6 x 8, Ornamental Cabinet Brackets, Packed with Screws, Bronzed	1.45
No. 112, 7 x 9, Ornamental Cabinet Brackets, Packed with Screws, Bronzed	1.83
No. 115, 8 x 10, Ornamental Cabinet Brackets, Packed with Screws, Bronzed	2.21
No. 120, 8 x 12, Ornamental Cabinet Brackets, Packed with Screws, Bronzed	2.84
No. 125, 10 x 12, Ornamental Cabinet Brackets, Packed with Screws, Bronzed	3.08

Drawer Pulls.

	Per gross.
No. 20, 3½-inch Ornamental Copper Bronze, Packed with Screws	$0.80
No. 22, 3½-inch Ornamental Etruscan Bronze, Packed with Screws	1.28
No. 24, 3½ inch Ornamental Olympian Brze., Packed with Screws	1.39
No. 25, 3½-inch Ornamental Pompeii Bronze, Packed with Screws	1.41
No. 35, 4-inch Ornamental Copper Bronze, Packed with Screws	.97
No. 37, 4-inch Ornamental Etruscan Bronze, Packed with Screws	1.34
No. 39, 4-inch Ornamental Olympian Bronze, Packed with Screws	1.54
No. 40, 4-inch Ornamental Pompeii Bronze, Packed with Screws	1.54
No. 50, 4½-inch Ornamental Copper Bronze, Packed with Screws	1.17
No. 52, 4½-inch Ornamental Etruscan Bronze, Packed with Screws	1.74
No. 54, 4½-inch Ornamental Olympian Brze., Packed with Screws	1.64
No. 55, 4½-inch Ornamental Pompeii Bronze, Packed with Screws	1.65
No. 27, 3½-inch Ornamental Etruscan Bronze, Packed with Screws	1.35
No. 29, 3½-inch Ornamental Olympian Brze., Packed with Screws	1.48
No. 30, 3½-inch Ornamental Pompeii Bronze, Packed with Screws	1.49
No. 42, 4-inch Ornamental Etruscan Bronze, Packed with Screws	1.46
No. 44, 4-inch Ornamental Olympian Bronze, Packed with Screws	1.63
No. 45, 4-inch Ornamental Pompeii Bronze, Packed with Screws	1.54
No. 57, 4½-inch Ornamental Etruscan Bronze, Packed with Screws	1.64
No. 59, 4½-inch Ornamental Olympian Brze., Packed with Screws	1.84
No. 60, 4½-inch Ornamental Pompeii Bronze, Packed with Screws	1.85

Less 15c. per gross, all above.	Per doz.
No. 224, 3½-inch Ornamental Genuine Bronze, Packed with Screws	$0.97
No. 239, 4-inch Ornamental Genuine Bronze, Packed with Screws	1.12
No. 254, 4½-inch Ornamental Genuine Bronze, Packed with Screws	1.36
No. 229, 3½-inch Ornamental Genuine Bronze, Packed with Screws	1.08
No. 244, 4-inch Ornamental Genuine Bronze, Packed with Screws	1.31
No. 259, 4½-inch Ornamental Genuine Bronze, Packed with Screws	1.52
No. 234, 3½-inch Ornamental Genuine Bronze, Packed with Screws	1.02
No. 249, 4-inch Ornamental Genuine Bronze, Packed with Screws, Old Gold Finish	1.28

Window Pulleys.

	Per doz.
1¾ in. Pulleys, in Bulk, Polished Wheel, Plain Front, Extra Heavy	$0.15
2 in. Pulleys, in Bulk, Polished Wheel, Plain Front, Extra Heavy	.19
2¼ in. Pulleys, in Bulk, Polished Wheel, Plain Front, Extra Heavy	.23
2½ in. Pulleys, in Bulk, Polished Wheel, Plain Front, Extra Heavy	.27

In papers, 1 cent per doz. more. Polished and Bronzed, in papers, 3 cents per doz. more. Not less than Barrel lots.

Coat and Hat Hooks.

	Per gross.
No. 75, Japanned, 15 pounds	$0.50
No. 210, Japanned, Bull-Frog Pattern	.64
No. 215, Coppered, " "	.64
No. 110, Schoolhouse Hook, Japanned, extra heavy	1.12
No. 115, Schoolhouse Hook, Coppered, extra heavy	1.20

	Per doz.
No. 130, Harness Hooks, 4½ inch, Japanned	$0.24
No. 132, " " 5¼ inch, "	.30
No. 134, " " 5½ inch, "	.36
No. 136, " " 6 inch, "	.40

	Per gross.
No. 260, Ornamental Coat and Hat Hooks, Bronzed	$1.71
No. 265, Ornamental Coat and Hat Hooks, Polished and Bronzed	1.95
No. 266, Ornamental Coat and Hat Hooks, Pompeii Bronze	1.95
No. 290, Ornamental Coat and Hat Hooks, Etruscan Bronze	2.30
No. 295, Ornamental Coat and Hat Hooks, Olympian Bronze	2.37
No. 296, Ornamental Coat and Hat Hooks, Pompeii Bronze	2.28

	Per doz.
No. 140, Ornamental 8-inch Bird Cage Hooks, Etruscan Bronze	$0.24
No. 145, Ornamental 10-inch Bird Cage Hooks, Etruscan Bronze	.28
No. 150, Ornamental 8-inch Bird Cage Hooks, Olympian Bronze	.27
No. 160, Ornamental 8-inch Bird Cage Hooks, Etruscan Bronze	.24
No. 170, Ornamental 10-inch Bird Cage Hooks, Olympian Bronze	.31
No. 180, Ornamental 8-inch Bird Cage Hooks, Olympian Bronze	.28
No. 190, Ornamental 10-inch Bird Cage Hooks, Olympian Bronze	.36

Casters.

	Per set.
1⅝, No. 1, Iron Wheel	41½¢
1⅝, No. 2, "	41½¢
1⅝, No. 3, "	51½¢
2 in., No. 1, "	61½¢
2 in., No. 2, "	64½¢
2 in., No. 3, "	71½¢
2 in., No. 4, "	71½¢

Same with Porcelain Wheel, from 12½¢ to 21½¢ per set more.

Extra, with Lignum Vitæ Wheel, from 21½¢ to 3¢ per set extra.

1⅝, Globe, Porcelain Wheel	10 ¢
2 in., " "	14 ¢
1⅝ in., " Lignum Vitæ Wheel	12 ¢
2 in., " "	17 ¢
No. 1, Philadelphia Casters, Iron Wheel	41½¢
No. 2, " " "	43½¢
No. 3, " " "	51½¢
No. 4, " " "	53½¢
No. 5, " " "	6 ¢
No. 1, Philadelphia Casters, Porcelain Wheel	51½¢
No. 1, " Lignum Vitæ "	53½¢
No. 2, " " " "	61½¢
No. 2, " Porcelain "	51½¢
No. 3, " " "	61½¢
No. 3, " Lignum Vitæ "	71½¢
No. 4, " " " "	81½¢
No. 4, " Porcelain "	71½¢
No. 5, " " "	71½¢
No. 5, " Lignum Vitæ "	81½¢

	Per doz.
No. 140, Ornamental Store-Door Handles, extra heavy, Etruscan Bronze	$1.60
No. 141, Ornamental Store-Door Handles, extra heavy, Olympian Bronze	1.70
No. 142, Ornamental Store-Door Handles, extra heavy, Pompeii Bronze	1.80
No. 241, Ornamental Store-Door Handles, Real Bronze, very heavy	9.00
No. 375, Ornamental Match Safes, Iron, Pompeii finish, very elegant	1.50
No. 395, Ornamental Match Safes, Iron, Pompeii finish, very elegant	1.75
No. 376, Ornamental Iron, Nickel-Plated, Inlaid, Old-Gold Finish, very handsome, will sell at sight	2.25
No 396, do. do.	2.75
No. 475, do. do., Real Bronze, each	1.25

Blind Hinges.

No. 1, for Wood, for Southern trade, 6 doz. sets in a case	per case. $3.75
No. 1½, for Wood, extra heavy, for Cold Climates, weight per case, 6 doz. sets, 130 lb.	4.25
No. 7, for Brick Mortise, Self-Locking, Wrought Iron Locking Device, with Inside Fastenings. Patented September 8, 1884. Weight per set, 3 pounds	per set. .18
No. 150, Cupboard Catch, Patent, with Screws, Etruscan Bronze	per gross. 1.36
No. 1, Blind and Shutter Bowers, Bows Blinds at Two Angles, and Locks when Shut, ¾ doz.	.56
No. 100, Blind and Shutter Bowers, Bows Blinds at Two Angles, and Locks when Shut, with Screws	per doz. .75
No. 290, Ornamental Shutter Knobs	per gro. 2.10
No 295, Ornamental Shutter Knobs, Pompeii Bronze	per gross. 2.24
No. 335, Ornamental Shutter Knobs, Genuine Bronze Metal	per doz. 1.25

No. 50.—Two-Third Size.

ORNAMENTAL

Store Shelf Brackets.

Bronzed. Packed with Screws.

PER DOZEN PAIRS, 90 cents.

Ornamental Drawer Pulls.

Full Size Cut of Nos. 42 to 244 and Style of Nos. 27 to 259.

Two-Third Size.—No. 100, 4 x 5.

BROUGHTON'S PATENT

Burglar-Proof Sash Lock.

Full Size.—Nos. 210 to 225.

Ornamental, Real Bronze, with Bronze Screws.

Very Heavy. Our last design.

PER DOZEN - - - $2.40.

NOTICE TO THE TRADE.

Having been the first Manufacturers of Hardware Goods in the country to initiate the system of quoting net bottom prices, we deem it essential at this time, and for our own protection, to make an explanation to the Trade.

None but Hardware Dealers can buy our goods. The quoting of net prices is intended for them exclusively, and to enable us to market our product, dispensing with travelers or middlemen, and place us in direct relations with the Trade. By this system our business has increased so rapidly that we have purchased fourteen (14) acres of ground here, and have made arrangements to enlarge our works fully ten times greater than our present.

Net prices, square dealing and uniform prices to all have accomplished this. It is true that it has brought down on our heads the anathemas of the old Puritan element in the Manufacturing Hardware line, with an odd petty jobber here and there, but the best element of the Trade throughout the country encouraged our efforts by sending in a large number of orders, and have thus compelled us to enlarge our works.

It has also enabled us to reduce our expenses not less than 5 %, which alone is a splendid profit in times like these. We are enabled to market all the goods we can make and place them in the hands of the best trade in this country, and export to Canada, British Columbia, Australia, England and Germany.

In an enlightened age like the present the Trade wants to know where they can buy first-class goods at the very lowest market prices. We believe that we have shown them. Our prices are like the laws of the Medes and Persians—unalterable until further notice—with no deviation under any circumstances, with no "*inside track*" for anybody, but the same prices and terms for all. We are certain that this system must prevail in the Hardware business, as it has in other lines, and the concern that is not in advance of the times nowadays "gets left."

We are not, as our rivals have reported, selling goods at or below cost. On the contrary, we give the Trade and our rivals notice that we are making a fair living profit on all goods made by us. It is true it is a very small margin of profit, but it is greater than loaning out our capital at 2 % per annum, which is about all we could get for it now; besides, selling goods on 15 days' credit enables us to figure and compute as accurately as life insurance companies. We are losing nothing by bad debts. Lost only $25.11 in two years. That being so, we can sell closer than any other manufacturers in the country. No matter how much money they may be able to command, by our new patents we can make the leading staple articles cheaper than the oldest manufacturers in the country. We prefer to do a large business, and it can be done only by marketing our product at a fair margin of profit, by quoting goods at such figures that any dealer can see at a glance that to get lower would mean a loss, and to establish a uniform system of net prices in the Hardware Manufacturing business, so that one man's money, for quantities less than $500, is no better than another's, to lessen the cost of production, and last, though not least, to keep our hands at work all the time, which we propose to do.

We are in the business to stay, and propose to continue in this manner of quoting net rock bottom prices for the exclusive information of the Trade, who are the only parties that can get our goods. We ask the indulgence of the Trade and their substantial assistance by buying our goods if they think it for their interest only.

MANHATTAN HARDWARE CO.

The Manufacture of Iron and Steel Wire Rods in the United States.—I.

Some time ago two Belgian engineers, M. P. Trasenter and M. Jules G. Fréson visited the iron works of the United States, and on their return submitted reports summarizing their observations, which have been printed in the *Revue Universelle des Mines*. We shall refer at length at a future time to M. Trasenter's work. That of M. Fréson relates to the manufacture of wire rods in this country, and, since it is the only summary of the status of that industry which has yet found its way into print, its reproduction will prove interesting to many who have not closely followed its development. M. Fréson has an introductory review of the questions affecting the demand and the supply of wire rods, which he sums up by stating that the requirements of this country are certainly not less than 350,000 tons per annum. Since on an average 125,000 to 150,000 tons are imported, there is a balance of at least 200,000 to 225,000 tons to be provided for by American works. The latter possess about 30 trains, some of which roll small iron and steel merchant shapes during a part of the time, so that their capacity is difficult to estimate. Steel wire rods are made a specialty by about a dozen firms, among which the following may be mentioned: Washburn & Moen Mfg. Co., Worcester, Mass.; Albany and Rensselaer Iron and Steel Company, Troy, N. Y.; John A. Roebling's Sons & Co., Trenton, N. J.; Trenton Iron Company, Trenton, N. J.; Cambria Iron and Steel Company, Johnstown, Pa.; Cleveland Rolling Mill Company, Cleveland, Ohio; Union Iron and Steel Company, Chicago, Ill.; Harrison Wire Company, St. Louis, Mo.; Hartman Steel Company, Beaver Falls, Pa.; Oliver & Roberts Wire Company, Pittsburgh, Pa. These works possess about 15 trains, five of which had entirely stopped, and only seven were running full time. They are capable of producing annually 220,000 gross tons, although they have not until now reached 100,000 tons. According to an estimate by Mr. James M. Swank, the consumption of steel wire rods is not greater than 200,000 tons, so that the American trains are capable of filling the requirements of the country. Still they have a hard struggle against imported rods, which continue to come in in consequence of the low prices at the German works. The quotations at Duesseldorf, in fact, show that steel wire rods have declined $10 in one year. The magnitude of the capacity of the American works has a tendency toward establishing an equilibrium between the supply and demand, and will prevent the sudden increase of imports in the future, unless there is a change in the tariff laws, or unless some special circumstances, like a rise in pig iron, restores to the Belgian steel wire rod mills their past prosperity.

A reduction in the duty on iron wire rods would be of particular advantage to the Swedish works, since the American wire drawers are accustomed to work metal far superior to that of the Belgian wire, so that they show little disposition to take the Belgian coke irons. The American works consume a large quantity of steel, because that metal costs less than ordinary iron. Steel is used even for telephone wire where the current is weak and the distance is short, although authorities in telephone matters unanimously insist upon the superiority of "Best Best" iron on account of its greater conductivity. The telegraph companies insist upon a superior iron. The wire must show an elongation of 15 per cent., while the Belgian State only requires 2 per cent. A reel of 180 pounds must not consist of more than two or at most three pieces, while the minimum is 45 pounds for a length in Belgium. In America the weight per mile ohm must not be greater than 4900 to 5000 pounds, which corresponds to an electric resistance of 13 ohms per mile for No. 8 wire, weighing 380 pounds a mile, while the the Belgian State lines admit a resistance of 18 ohms. Extra Best Best quality alone will meet such requirements, and as it is produced from Swedish charcoal iron its price is high. Its weight per mile ohm varies between 4600 and 5100, while that of B. B. ranges between 5500 and 5800 pounds, that of B. is about 6500 pounds, and that of steel fluctuates between 6600 and 7000 pounds. These considerations show that account must be taken of the quality of the iron used when the weight of the articles rolled and the production attained in America is compared with similar work in Europe. Often the difference in the raw material used will explain results which one would be otherwise tempted to attribute to the perfection of the mechanical details of the plant.

The iron wire rod trains and modern steel rod mills do not work under the same conditions. For both rapid rolling is desirable, but for different reasons. With the first it is aimed at on account of its influence upon the character of the product; with the second, for the effect it has upon the cost. In order to reduce the number of passages through the wire draw-plate, rods for wire drawing must be rolled to small dimensions, while avoiding anything that may injure the quality of the iron. Speed in rolling tends to completely utilize the welding heat and to allow of reaching the small size aimed at before the wire grows too cool. If the latter temperature should be reached before the last pass the transformation of the previous oval into round cannot be effected without affecting the molecular structure of the metal and robbing it of certain properties. The iron will be hardened, and in cooling will not be covered by the blue oxide, but by reddish oxides. In order to manufacture No. 7 and No. 8 B. W. gauge, it is therefore necessary to increase the speed of rolling and to be content to roll pieces of moderate length, according to the softness of the metal treated. Under these conditions the output cannot help being limited. It is a different matter with steel wire rods, which are rarely smaller than No. 5 B. wire gauge. With them the question of maintaining quality is not the ruling one. Steel is more easily rolled than iron, and in this case high speed is aimed at chiefly to reduce cost of labor and general expenses. On the other hand, the steam is not furnished by the waste heat of the furnaces, and the rolling of steel requires greater and more costly motive power, which leads to more perfected mechanical appliances.

The oldest wire rod mill, the English train, consists of five stands of rolls in a line—*i. e.*, an 8½ to 10 inch three-high roughing set and four sets of 7 to 8 inch continuous rolls. In this system the speed of the rolls is limited by the skill of the workmen. Since in reality every one of these five sets of rolls makes the same number of revolutions, the rolls of the first set, having the largest diameter, possess the greatest speed at their circumference. The rollers have difficulty in catching the billets from them, and this fact places a limit on the speed of the finishing rolls. In England and Germany the maximum is 400 revolutions; in France, where labor is quicker, 500 revolutions have been reached. The latter speed has made it possible to roll No. 9 wire rods. Although these trains are capable of converting daily 20 tons of 2-inch 30 pound billets into No. 7 wire rods, they do not satisfy the Americans, who complain of the following drawbacks:

1. The billet is too suddenly reduced in the oval grooves of the roughing train, and the shocks which are the result thereof injure the entire train and its transmissions.

2. The service of this set is hard and calls for three strong men, one of whom is always resting.

3. In spite of their skill three men do not always succeed in catching the billet, especially when it weighs 25 kg. They must pick it up from the floor, which leads to loss of time and injurious cooling.

4. The rolls of the roughing train cannot be made more than an inch greater in diameter than the 7 or 8 inch rolls of the other sets, and as they are of cast iron it would be well, in the interest of their durability, if their diameter were greater.

The defects of the English system have led to its being generally replaced by what the Americans call the "Belgian" system. In it the roughing train consitutes a separate train having a speed below 200 revolutions, being a set of three 12 or 13 inch rolls with the pinions placed at the outer end, in order to interfere less with the finishing train. The latter, placed parallel to it and a dozen meters from it, consists of a stand of pinions and five to seven two-high sets, which may be driven at greater speed. With the object of rolling steel, the diameter of the rolls has been increased from 8 to 10 inches. This increase does not render casting in a chill difficult, and the increase in cost is counterbalanced by the following advantages:

1. The speed in rolling is increased by one quarter without altering the speed of the engine, or the number of revolutions of the latter may be reduced one-fifth, which is favorable to economy in steam consumption and to the durability of the transmission.

2. The rod is caught better by the rolls.

3. The rolls are more solid and do not need so frequent turning.

4. The pillow blocks are more accessible and do not wear out so fast.

In some mills a further step has been taken. Instead of increasing regularly the size of all the finishing rolls, those of the two last sets have been increased by ½ inch by which the corresponding passes have been increased and the formation of the injurious loop of wire between the last two sets has been diminished. This idea of progressively increasing the speed of the rolls of the different sets has been completely realized in the system of Henry B. Comer. The following are its leading characteristics:

1. The mill is composed of successive pairs of rolls placed horizontally, end to end.

2. They are actuated by gearing which imparts to certain pairs a greater speed at the circumference than that of the preceding one without increasing the diameter of the rolls.

3. Some rolls have a greater diameter than that of others, so that the increase in speed as compared to that of the preceding pair is obtained without changing the gearing.

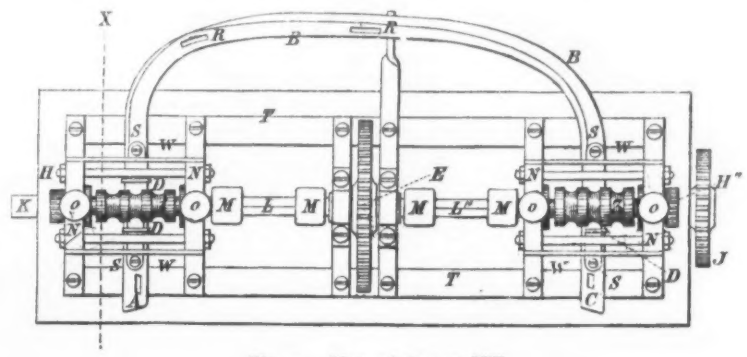


Fig. 1.—Plan of Comer Mill.

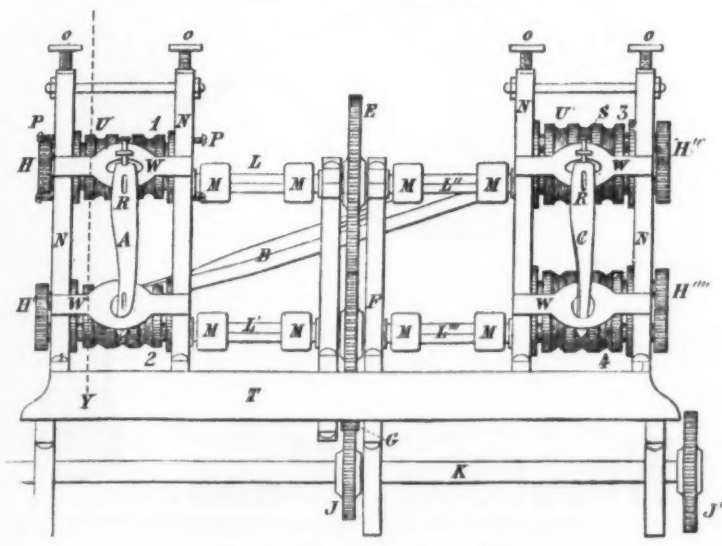


Fig. 2.—Elevation of Comer Mill.

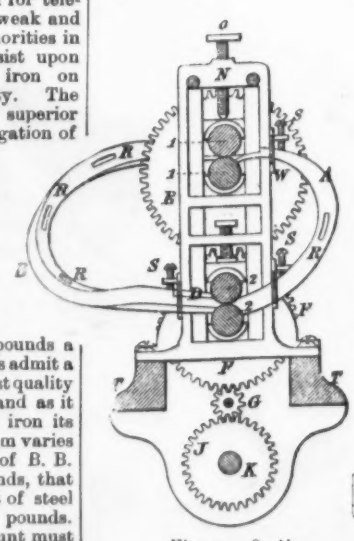


Fig. 3.—Section.

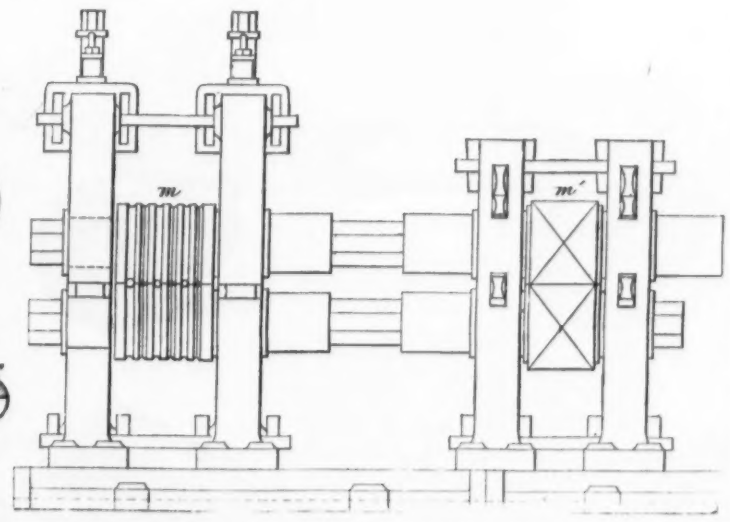


Fig. 6.—Garrett Intermediate Train.

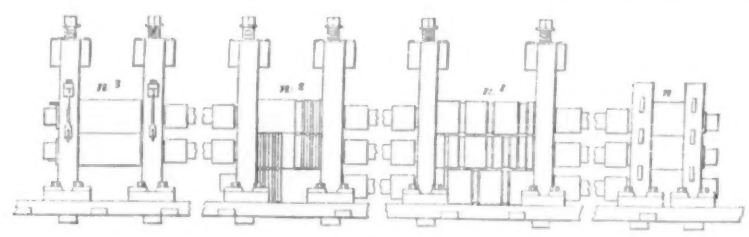


Fig. 5.—Garrett Billet Train.

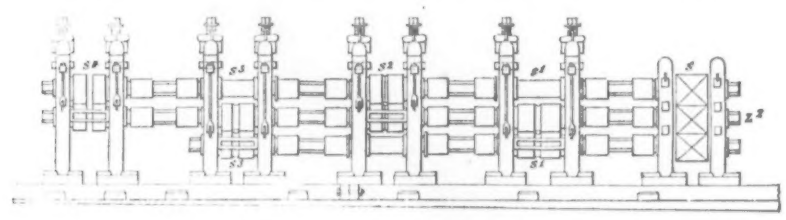


Fig. 7.—One-Half of Rod Train.

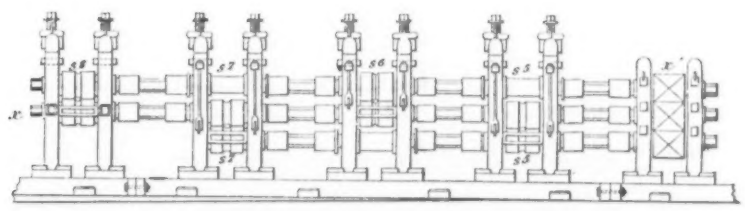


Fig. 8.—One-Half of Rod Train.

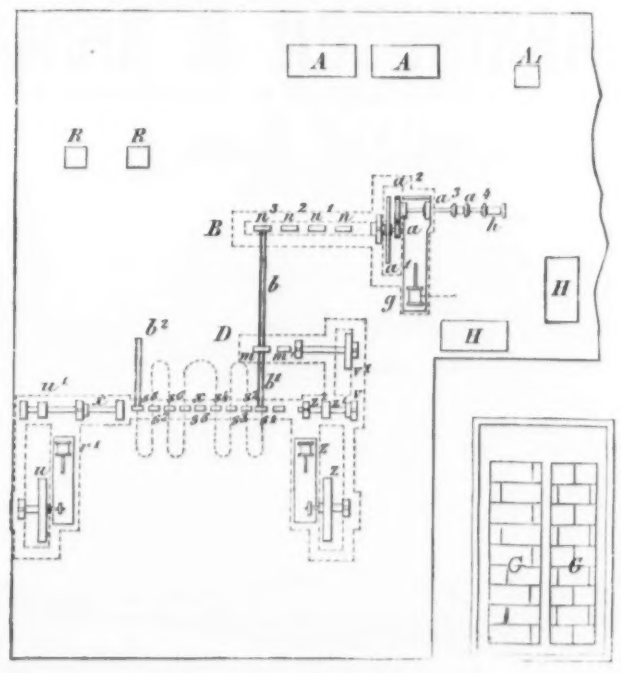


Fig. 4.—General Plan of Garrett Mill.

THE MANUFACTURE OF IRON AND STEEL WIRE RODS IN THE UNITED STATES.

4. Succeeding sets are connected by guides which give the rod a certain twist and which conduct it from one set of rolls to the following one placed at a different level.

Fig. 1 shows a plan of four pairs of rolls in two stands, with their guides, their gearing and that of the succeeding series of four pairs. Fig. 2 is an elevation, showing the shaft and gearing. Fig. 3 is a transverse section following the line X Y. The two sets of eight rolls necessary to roll wire rods are not shown; what has been reproduced is sufficient to show the two methods of increasing the speed of the rolls in such a manner that it is proportionate to the length of the rod. The billet coming from the furnace passes in succession through the rolls 1, 2, 3 and 4. A B C are the guides which conduct the metal from one pair to the other. D D are the feeds placed at the end of each guide. E F G H H' H'' H''' is the gearing. J J' are the cog-wheels on the shaft K. M M are the couplings, and N N the housings.

For rolling long wire rods the mill is composed of eight sets containing each two pairs of rolls and of one pair of finishing rolls. Power is transmitted through the shaft K, carrying four gears like J, and actuating four sets of rolls. They are placed as indicated in Fig. 2, except that J' is not in its true position. The wheel E is greater in circumference by one quarter than F, so that the motion communicated to rolls No. 2 is one-quarter faster than that of rolls No. 1, which have the same diameter. Rolls No. 3 are thicker by one-half than rolls No. 1, so that their speed at their circumference is one-half greater than that of No. 1, and one-quarter greater than that of No. 2. The diameter of No. 4 is equal to that of No. 3, and, as this pair is actuated by the wheel F, its speed is one-quarter faster. The speed, therefore, increases steadily from No. 1 to No. 4.

The second series of four pairs, not shown in the figure, has the same dimensions respectively as the first, and, in consequence, the same increase in speed from the first to the fourth, but the speed generally is increased by the wheel J' double that of J. Thus, No. 5 has a speed one-quarter greater than No. 4, and so on till No. 8, where the regular increase in the speed is interrupted. By putting a smaller wheel on the main shaft K, to drive the pairs 9 to 12, for instance, the same size used for driving Nos. 1 to 4, the pairs 9 to 12 are driven at a much less speed than Nos. 5 to 8, being given, in fact, the same velocity as 1 to 4. The speed then grows from 9 to 16 in the same way as from 1 to 8.

The rate of progression in speed may be regulated at will. For convenience in description it has been assumed at one quarter and it has been assumed to be constant. It is evident that it must correspond to the gradual stretch of the rod. It will depend upon the speed of the first pair of rolls, be increased continuously from No. 1 to Nos. 9 or 10.

The Comer double sets have certain advantages in their economy of space and first cost. The rolls, being on different levels, give a good fall to the guides, and immediately shed the water in them which has served to cool the rolls. Where guides are horizontal or have little fall this water stays in them a certain time and cools the metal. It injures its quality and prevents rolling down to small sizes. In spite of this it has been decided at Johnstown that the complication of the double sets does not justify the securing of these advantages. A series of sets with two rolls has been placed in a line, two stands each forming a separate train, which receives its motion from the shaft K through the intermediary of gearing. The second pair of rolls of each set is driven at greater speed.

There naturally follows, though it is the last comer, an essentially American train, that of William Garrett, erected in 1882 at Cleveland, in 1883 at Beaver Falls and in 1884 at Pittsburgh. It is arranged to roll, not billets, but 4-inch steel blooms, about 4 feet long, which are directly converted into rolls of wire rods several hundred feet in length. It suppresses one reheating and the losses of time, the cost and the waste of oxidation which that implies. To carry out this idea certain special arrangements are necessary. The passage from one set of rolls to the next must be very prompt, so that the temperature of the metal does not reach the limit at which it becomes impossible to roll small sections and roll them on the reel. The speed in working is great. Two to three blooms pass per minute, and 90 to 100 seconds suffice for the complete reduction of each one of them. In its largest sense the Garrett plan might be applied to the transformation of the ingot into the wire rod. Its general arrangement is shown in Fig. 4, the details being given on a larger scale. These drawings are reproduced from Mr. Garrett's patent, No. 289,524, dated December 4, 1883. He has since been granted two additional patents, dated June 9, 1885, and June 16, 1885. The boilers G G occupy a corner of the building. By their side are the ingot-reheating furnaces H H and the blooming train *h*, with its engine *g* and the gearing *a*. Further on are the shears A'. The bloom, reduced to the section and the length desired, is heated in the furnaces A A before undergoing further work. It first goes through a billet train, B, driven by the same engine which runs the blooming train. This billet train is shown in elevation in a larger scale in Fig. 5. When rolling steel the last set, n^5, in which the billet is generally given only one pass, the rolls may be flat; when rolling iron, however, they must be grooved.

The bloom is thus reduced to a 1 x ½ inch rectangular or oval section. It then goes through the intermediate train D, an eleva-

tion of which is shown in Fig. 6, where it is given a round, oval or square section equivalent to a section of ½ x ¾ inch. It is then finished in the continuous train. The single set of rolls *m*, which constitutes the intermediary train D, is placed behind the delivery pair of the billet train and in front of the first set of the continuous train and on the same line of feed. The billet is fed by the guide tube *b*, and there is a guide tube, *b'*, to the first set of the continuous or rod train. The latter consists of two parts, Figs. 7 and 8, and is composed of eight sets of rolls, s^1 to s^8, the rolls of the first being driven by the pinions *s*, and those of the second by the pinions *x*. These trains, as well as D, are hung to the engines *r* and *z*. It must be understood that the distances between the trains B D and C suffice to allow the piece rolling to pass through the rolls in both directions. The feed tube *b* must be slightly longer than the rod, so that the men can give it a quarter-turn and feed it at once to the intermediate train. In leaving the last pair s^8 of the train C^1, the rod goes through a guide, b^2, which directs it toward the reels R R, on one of which it is wound. One man handles the reels. He seizes the end of the rod, attaches it to one of the two reels, and, while that one is winding, the other is emptied and got ready to receive the following rod. Thus the reels revolve alternately and the rods are wound and carried off as fast as they are produced.

In the Garrett mill the number of sets and the grooving of the rolls vary according to the product to be made. The billet train and the finishing train have no other novel features except their connection through the intermediary of a train which corresponds to the separate roughing train of the Belgian system. The innovation consists in the arrangement on the same line of feed of the last set of the billet train, the intermediate train and the first stand of the finishing train.

The axes of the three trains being parallel, the motion is imparted to them by pulleys which may be driven by a single shaft. It is, however, advantageous to have two or even three engines.

(To be continued.)

Steam-Power in Reference to Electric Lighting.

Before the recent meeting in this city of the National Electric Light Association, Mr. A. F. Upton, of the Jarvis Furnace Company, delivered an address on the subject of steam-power for electric lighting plants, from which we cull the following:

The principal thing to my mind in regard to electric lighting is the power, and then comes the cost of power. I have always claimed, from my own experience, that the matter of power in regard to electric lighting was figured, in one sense, on a wrong basis. My idea, in order to get at the bottom of electric lighting, is that the cost of power should be most carefully looked to. The only thing to be considered is the actual price per lamp per hour—not evaporation or pounds of coal per hour. It is the actual cost of running an incandescent lamp per hour. The first question that would come in regard to that would be fuel. In selling lights you are selling power. That is always to be kept before the mind. In carrying out that line of argument I propose to state my own experience. Believing that electric lighting had come to stay, we devoted all our energies toward getting up the most economical plants we possibly could. We decided to use direct-acting engines—that is, direct belting, not using long stroke engines. That was our experience in watching several stations at the start, and in the stations that we subsequently equipped we adopted the Armington & Sims engine. In regard to boilers, we have finally settled on using a plain steel tubular boiler. The size we are generally putting in now is 6 x 16 and 140 3-inch tubes, giving us 120 horse-power. At the Edison station in Brockton, Mass., with a boiler of that size and that engine, 150 horse-power, with 80 pounds of pressure, we have run between 1500 and 1900 10 to 16 candle-power lamps of the Edison system. We used cheap fuel. In a test taken with a sectional boiler it showed an economy of 22 per cent. as regards using soft bituminous coal.

The principal point we have made in regard to fuel was utilizing all kinds of cheap fuel, such as screenings, soft coal, slack, cinders from locomotives, saw dust, cotton-seed, waste, rice shucks. Anything that has anything combustible in it, whether wet or dry, we have used to good advantage. We have taken great pains to obtain our figures. In some cases I have got them; in others, not. There seems to be a reluctance among people to tell the figures. But the lowest I have is from the Thomson-Houston system, in Houston, Me. They are running at a fuel cost of 2 mills per lamp per hour. I found that the average cost on a station that we have fitted up has been, using screenings and soft coal, and using arc lamps, about 4 mills per lamp per hour. Incandescent figures I have not got. A test has recently been made where we partially fitted up stations on the Edison system. I have talked with a great many of the electric-light people, and I have tried to enforce my ideas that it is not evaporation, but the actual cost of the day or night's run, that is wanted. If one man gets 50 cents, and another $3, why the man who gets the 50 cents gets the best results. In fitting up stations I spoke of using direct belting engines. We found, in making several tests, that the power used in driving shafting has run from 10 to 15 per cent. There are gentlemen in this convention who have a plant where it took 22½ per cent. of the power to run the shaft. There is a station in the City of New York where they have been shut two weeks from the breaking of the shafts. That can never happen where direct-belted engines are used.

Another point in running direct-belted engines. As a rule, not more than 100 arc lights are put on a circuit. Now, if those are run from one dynamo or one engine, if one engine breaks down your whole system is disarranged. In fitting up stations I simply give what we use ourselves. We use Sheffield grates; we use the "National" heater, made in New Haven. Wherever we can we use the steam damper, keeping the pressure even and keeping the draft right. I would advise all to use, where tubular boilers are used, the steam cupola. I found that where slack coal or bituminous coal is used it helps much in keeping the tubes clean. Of course that depends very much on the engineer and fireman. I found a great deal of difference in that. In every station we have put in scales for weighing the coal. All well-regulated mills with which I have any acquaintance scale all their coal. I do not wish to enter into the question of electric lighting. That is not in my line at all. But we have done work for a considerable number of companies.

I would like to speak of one system that is working now in the city of Lawrence. We have three engines in that station. We have just sold two 10 x 12 Armington & Sims engines, 90 horse-power each, to run a new system that is just in there, called the "Municipal" system. They run on that system four circuits of 10 miles each. I am now talking of the incandescent system. These are 32-candle-power lamps. They contract for 500 of those lamps for $650. Now, it may puzzle you, but it puzzles the gas company still more, how they are going to do it. There is one other thing that has occurred to me several times that I think the electric-light companies should take into consideration, and that is the letting of power. At this same station a large number of moters are used, which run all day. They run from ½ horse-power to 5 horse-power. Those motors are all employed, as I understand from the parties, at a good profit, and it has always seemed to me that every one should use their power. You have it there, and why not use it? In the Thomson-Houston station the construction of the plant is so peculiar that I think I am justified in bringing it up before the convention. It was changed so that over the station a shoeshop has been fitted up. The shoeshop is run by the engines in the daytime, and they receive as a rental for that power $2000 a year. This is supplied by a 35-horse-power engine. It does not require quite 35 horse-power, because, while one engine runs the machine in the shoeshop, the other runs all the electric lights in the city. If all stations were built in that way there is not one in the country but what would hold out a very handsome profit on the surplus power they might have in the daytime.

Another point in regard to the station. There is an Edison Company started first and afterward a Thomson-Houston arc system, and this is the result that is given: After the incandescent started, the sale of of gas increased largely, and after the arc came in it increased again 10 or 15 per cent. Now the question is asked, How did the introduction of so many arc and incandescent lamps increase the sale of gas? I can account for it in no other way than that, when one store is lighted brilliantly by electricity, the next one has to use more gas. But my experience in New England has been that every gas company has increased its sale of gas as the arc lights have been introduced. I have spoken of a station partially erected and only partially equipped, where we set the boilers while the engines were being finished. That station was the first first incandescent station that I ever examined. Instead of being under ground, it is all over head, and the station, as they informed me, has been paying a profit from the start. All gentlemen who start arc lighting do their own wiring. Contracts were made for the year and payable monthly, so much per lamp every month, and the companies do the wiring. That, in my opinion, the was cause of the success of the station. A gentleman said to me the other day that it was not paying, and I said, "if any gentleman will go there and examine it carefully and look over the room, and if he says it is not paying a profit I will pay his expenses." The fuel costs 8 and 10 cents a ton.

We have had some experience in regard to electric lighting and water-power in New England. But as a rule water-power has been entirely abandoned. The trouble has been that it is not reliable. In Manchester the water has been very low several times in the last few years. In Lewiston and Holyoke it has given out altogether, and the stations there are entirely equipped with steam-power. I understand there is a very successful station in Rochester running on water-power.

A Stringent Building Law.

The security of cities and towns from disastrous fires depends in a great measure upon the care with which buildings are erected. The greed of gain causes many business blocks, as well as dwelling-houses, to be put up in a way to invite conflagrations rather than to avoid them. Inasmuch as private interests are not sufficient to insure proper precautions in this respect, it is necessary that stringent building laws should be enforced in order to provide for the safety of the community at large. A new building law has recently gone into effect in Boston which is characterized by the thoroughness of the provisions made to limit fires and secure slow combustion. This will be apparent from a few short extracts.

The section which relates to the isolation of the different stories in a building provides that the insides of all furred brick walls of every brick building hereafter constructed shall have a fire belt or stop, composed of some fire-proof material, at least 6 inches wide, and thoroughly set up between furrings at the top and bottom of each story; and the whole area of every floor from wall to wall shall be deafened with plaster at least 1 inch thick, or two thicknesses of asbestos paper or other incombustible material satisfactory to the inspector, the same to be placed upon the under or rough flooring; and in each story in which stud walls or partitions are constructed, and rest on walls or other partitions, said stud walls and partitions shall have the spaces between the floor joists immediately under such walls or partitions, and between studs from the under side of said joists to a line 6 inches above the top of said joists, filled solid and flush with face of plastering on both sides with mortar, cement, plaster or other incombustible material; and if such studs or partitions shall rest on solid timber or joists for the whole length thereof, such filling as above described shall be placed from the top of such joists to the same hight as above specified, or a strip of tin or galvanized iron at least an inch wider than the width of said studding, and continuing under the footing of such walls or partitions, may be substituted for the filling above specified where there is no partition or wall under. The spaces between stringers or carriages, and between floor joists of landings, of all wooden staircases, unless such stringers and joists are left exposed and uncovered, shall be plugged solid with mortar or other incombustible material, or the spaces between stringers shall be closed at intervals of 3 feet by substantial stops of incombustible material.

The desirability of such features of construction as are above stipulated must be apparent to every one who gives the subject any thought. The succeeding section of the law provides that the various forms of construction tending to create or form air passages from one story to another, such as spaces around pipes, ventilating shafts or chimneys furred off to form breasts, in every brick building hereafter erected or altered shall have a fire and smoke stop of incombustible material at each floor, approved by the inspector. All ventilation ducts shall be of incombustible materials. With the present facilities for extinguishing fires with which every city is provided, the great *desideratum* is to retard the progress of a fire enough to give the fireman a chance. This, it would seem, has been one prominent object in view by the framers of the law referred to. Another desirable object to accomplish is the prevention of smoke in a building during the progress of a fire, which in many cases makes the escape of the inmates a matter of difficulty, even from those parts of the building which are not in immediate danger of burning. The clauses quoted aim to prevent the spread of smoke through a building after a fire has broken out in some portion of it. The new law, too, has many other excellent features, all tending to secure better and safer buildings.

NEW PUBLICATIONS.

ATLAS OF NEW JERSEY. Published by the Geological Survey of New Jersey. G. H. Cook, State Geologist.

The Geological Survey of New Jersey has issued the first of its series of topographical maps, on a scale of a mile to an inch. The sheets issued are one for the Southwestern Highlands, with the southwest portion of Kittatening Valley; one of Egg Harbor and vicinity, including the Atlantic shore from Barnegat to Great Egg Harbor; one of the counties of Bergen, Hudson, and Essex, with parts of Passaic and Union, one of the Central Highlands, including all of Morris County west of Boonton and Sussex County south and east of Newton; one sheet of the Northeastern Highlands, including the country lying between Deckertown, Dover, Paterson and Suffern, and finally one sheet of the valley of the Passaic, with the country eastward to Newark and southward to the Raritan River. The maps are excellently executed. The sheets are each 27 x 37 inches, including margin. We understand that 17 sheets will complete the work, the missing numbers to be issued in the next three years.

PLACER MINES AND MINING DITCHES. By Alber Williams, Jr., Tenth Census.

Among the belated publications of the Tenth Census is a chapter by Albert Williams, Jr., on the placer mines and the ditches used in hydraulic gold mining. A reprint covering about 60 pages has recently been issued. The report covers the data collected during the census years, and is mainly statistical and technical in its character.

A New Torpedo-Proof.—When, some years ago, the masonry of the quays in the Seychelles Island was found to be constantly needing repairs at great expense, in consequence of the deterioration due to violent seas, a plan was devised of protecting the portions exposed to the action of the waves by a palisade of bamboo canes, the space between which and the structure of the quay itself was filled in with the fiber forming the husk of the cocoanut. This cellulose, or coffer dam, as it is called, was found to behave like a sponge and offer the most effectual shield to the masonry of the quays. The great success of this expedient has led to some experiments which have just been conducted at Toulon, with a view of utilizing coffer-dam as a protective against projectiles, shells and torpedoes in naval warfare, and with a result that seems to indicate what may become a very extensive employment for the cocoanut fiber, which has already found so many uses in commerce, and the trade in which has recently been largely developed in the South Sea Islands. Coffer-dam, copra or coir are various commercial terms for the ligneous envelope of the cocoanut. This is disintregated and comminuted by various mechanical processes which we need not here describe. The cellulose itself is one of the lightest substances known, weighing about five times less than cork. The material used for the experiments was in every case a mixture of 14 parts of pulverized cellulose and 1 part of fibers, the latter acting like hair in mortar or cement as a binder.

La Société Anonyme le Nickel, of Paris, with branches at Glasgow, Birmingham and Noumea, New Caledonia, announce that they have acquired the nickel and cobalt works of Messrs. Fleitmann & Witte, at Iserlohn, and that Dr. Fleitmann's methods will also henceforth be adapted in all their other establishments.

Messrs. Esherick & Co., of 263 South Fourth street, Philadelphia, dealers in iron, steel, plates, shapes and bars, have issued in very attractive form a table giving the weights of round and square iron from 1 to 12 inches by increments of eighths, from 13 to 30 inches by increments of quarters, and from 30 to 40 inches by halves.

American merchants in Madagascar are strongly opposed to peace with France on the terms now proposed.

The Iron Age

AND

Metallurgical Review.

New York, Thursday, September 3, 1885.

DAVID WILLIAMS, *Publisher and Proprietor.*
JAMES C. BAYLES, *Editor.*
JOHN S. KING, *Business Manager.*
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RATES OF ADVERTISING.

One square (12 lines, one inch), one insertion, $2.50; one month, $7.50; three months, $15.00; six months, $25.00; one year, $40.00; payable in advance.

BRITISH AGENCY.

Office of THE IRONMONGER, 42 Cannon St., London.

DAVID WILLIAMS, Publisher,
83 Reade Street, New York.

PITTSBURGH.....77 Fourth Avenue.
JOS. D. WEEKS, Manager and Associate Editor.
PHILADELPHIA.....220 South Fourth Street.
THOS. HOBSON, Manager.
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The Decline in Barb Wire in 1884 and 1885.

Heavy as has been the decline in the cruder forms of iron and steel, it has not approached the drop in prices in one of the most interesting finished articles, barb wire. The trade has been one of exceptional interest through its wonderfully rapid development, its extraordinary profits in the earlier days and the fruitful crop of litigation which has marked its career. With the object of showing the fluctuations in values during the years 1884 and 1885, we have compiled the following quotations, showing the monthly range at Chicago as the leading market of the West and of the country, and of New York for the East, on four-point galvanized barb wire:

Prices of Barb Wire.

1884.	Chicago.	New York.
January	$5.50 @ 5.75	$5.87 @ 6.00
February	5.25 @ 5.50	5.50 @ 6.00
March	5.40 @ 5.50	5.75 @ 6.00
April	5.62 @ 6.00	5.87 @ 6.00
May	5.87 @ 6.12	5.87 @ 6.00
June	5.67 @ 5.87	5.75 @ 6.00
July	5.25 @ 5.50	5.37 @ 5.75
August	5.12½ @ 5.50	5.25 @ 5.50
September	5.12 @ 5.25	5.12 @ 5.25
October	5.00 @ 5.25	5.12 @ 5.25
November	4.75 @ 5.00	5.00 @ 5.25
December	4.50 @ 5.00	4.75 @ 5.00
1885.		
January	4.25 @ 4.75	4.75 @ 5.00
February	4.25 @ 4.87	4.75 @ 5.00
March	4.75 @ 4.87	4.70 @ 4.80
April	4.60 @ 4.75	4.65 @ 4.80
May	4.40 @ 4.50	4.50 @ 4.65
June	4.20 @ 4.50	4.40 @ 4.50
July	....	4.20 @ 4.40
August	.. ....	4.30 @ 4.40

The beginning of the year 1884 saw the attempt to organize a pool under the form of one concern bearing the name of National Barb Fence Company. Early in April a meeting of the manufacturers decided upon an advance, which was realized, since the spring demand was heavy. The price then established and well maintained was reaffirmed in the beginning of May, but the falling off in the requirements through the closing of the busy season caused an early weakening. This it was proposed to counteract by obtaining the adherence of all manufacturers to an agreement to close their works in July and August. The scheme fell through, and, while some establishments ran light in the months named, so many continued working that, with a dull summer entered into by a large part of the distributing trade, with fair supplies, stocks in the hands of manufacturers began to pile up rapidly. Under this pressure quotations fell off rapidly, and, with prices for plain wire remaining comparatively strong, the makers were complaining bitterly. The fall trade at first showed signs of opening auspiciously, but soon proved so unsatisfactory that the manufacturers made an effort to obtain the consent of the majority of producers to a restriction of the production. This second attempt again proved a failure, and in the winter months the market broke down under the weight of accumulating stocks and a fall in the prices of plain wire. The spring trade cleared away the stocks and allowed a recovery, but it was the general verdict that for the first time in the history of the barb-wire trade the volume of business at this season did not show a marked increase over that of its predecessor. As soon as the rush was over, prices again declined and fell considerably below the lowest point touched, a state of affairs due largely to the scare produced among unlicensed manufacturers by unfavorable decisions. On the other hand the summer business, naturally small, showed a greater steadiness in volume than it has ever done before. This is a feature which, it is to be hoped, may become a permanent and a more marked one. Alternating seasons of feverish activity and of stagnation are unfavorable to any trade. They call for a heavy outlay of capital in plant in proportion to output, extending as it does to the producers of the raw material.

The past 18 months have been a period of severe trial to the manufacturers of barb wire. It is true that the decline in plain wire has to some extent offset the fall in the finished article. A good gauge for this is furnished by the prices of wire rods, plain wire fetching now about $16 to $18 advance per ton in Western markets. Rods fell in tidewater markets from $46 in July, 1884, to $38 in June, 1885, a drop of 17 per cent., from which they have since recovered to $41.

One feature in the history of the trade during the period under review is the failure of all efforts to secure its regulation by agreements among makers, and the latest attempt in this direction does not thus far seem to hold out much better promise for the future. It must be emphasized, however, that the chances for success are better now than they have been since the legal questions at issue have taken a turn. We are now entering upon a period of the year when the demand naturally shows an improvement. It has already done so, and the increased volume of business has shown its effect in the withdrawal of the low quotations made not long ago. The South and Southwest are buying quite liberally and may be expected to absorb considerable quantities this fall. It appears, then, as though the worst days are over.

The Nail Situation West.

The labor struggle in the nail mills of the West has lasted three months, yet the contest is by no means settled, though there are indications that the workmen would be willing to offer a compromise of a 10 per cent. reduction. The effort to run mills with feeders, machinists and such nailers as were willing to join in it has been much more satisfactory than even the manufacturers themselves believed it would be, and very much more so than the nailers counted upon. In the last week the number of machines in operation has more than doubled, and over 200 machines are now cutting nails. One mill has 42 running, another 40, including all sizes from 3d. fine to spikes. The secretary of the Western Nail Association, in speaking of the character of the nails made, is reported as saying that, while the feeders are not averaging up to the full capacity of the nailers, they are turning out quite a large percentage of the largest product, and making good nails. He says he knows of one mill which is cutting nails ranging in size from fine three-pennies to spikes, which cut over 75 per cent. of the fullest capacity of the machines when run by nailers. The number of machines in operation would, if operated by nailers and fed by feeders, cut 2200 kegs of nails in a certain length of time, and run by feeders alone they cut 1685 kegs in that time. Another mill, with 26 machines going, averaged 300 kegs of nails a day the first week the feeders had charge of the machines—that is, 300 kegs of good, saleable nails, which were packed, branded, and will be shipped to buyers. The mill referred to is supposed to be at Wheeling.

A large majority of the feeders still adhere to their demand upon the nailers as to the percentage of their number that shall be taught nailing, and refuse to unite with the nailers on any other terms. They have formed a union of their own, the membership of which is increasing. One difficulty that has stood in the way of more feeders taking machines has been a fear that when a settlement is reached between the nailers and manufacturers, as it will be some time, they will be thrown out of employment, the nailers being given their old jobs. It is reported that the matter was quite thoroughly discussed at the recent meeting of the Nail Association at Pittsburgh, and a formal resolution passed, pledging the members of the association to retain in their employ, whenever a settlement should be reached, such feeders as had assisted in starting the machines. The feeders' association was to have a meeting on Sunday, to which this action was to be communicated, the effect of which will probably be seen in the increase in their number willing to take machines.

Of course under the stoppage of the mills in the West stocks have been very much reduced, but there seems to be no difficulty in jobbers and consumers procuring all the nails desired. It is also remarkable that, notwithstanding these three months' stoppage, there has been no increase in the price of nails. The Eastern mills are sending nails freely to all points in the West, Western manufacturers themselves being large buyers for the purpose of supplying their regular customers.

Tin in the United States.

For more than 50 years periodical tin excitements have been created in some part of the United States, accompanied by exuberant accounts of the richness of the deposits and their wonderful extent. In the great majority of cases there has not been the shadow of a claim that tin had been discovered, although there is at least one case on record in which ingenious "salting" was resorted to. If our memory serves us right it was a Missouri creek which had been carefully stocked with stream tin, and the fraud was discovered by a lynx-eyed young mining engineer after gray-headed "experts" had seriously committed themselves. In spite of the many failures hope has always lingered that this country might in time join in the ranks of producers of that metal, chiefly because the value of the ore is only detected by the experienced tin miner or the trained mineralogist. Thus the gold miners of the Black Hills, Dakota, had for years thrown the "black stuff" out of their sluice-boxes with disgust, not knowing that it was stream tin. It is true that there is a tradition among prospectors that the United States Government has in readiness a round sum, generally reported at $100,000, as a reward to the lucky individual who first produces tin. Notwithstanding this stimulant little real work was done. At or about 1860 a leading metal firm in this city took hold of some promising prospects in Southern California, expending a large sum of money in development work. It is insisted that high cost of labor, uncertainty of titles, &c., rather than want of fair-grade ore, was the cause of the stoppage of operations.

The failure of this and other attempts were well calculated to shake the faith of capitalists in the future of ventures of this character, and the discredit which was thrown upon mining operations in the far West by the unscrupulous practices of the boom period was not calculated to aid tin mining since then. When, however, in 1883 the announcement came that promising discoveries had been made in the Black Hills, interest was aroused, because the news was backed by the testimony of men of high standing. Soon, however, the daily papers began to teem with long interviews with alleged professors, Cornish tin miners, &c., in which such extravagant claims were put forward that the conservative element was rudely shaken. Since then absurd and false reports have been going the rounds. Sharpers have tried to get up tin excitements in some out-of-the-way locality, East or West, in order to place worthless land, and the whole tin-mining business has acquired a doubtful flavor.

It is all the more interesting to learn a few plain facts from so good an authority as Prof. W. P. Blake, of New Haven, who has visited nearly all of the Western discoveries and has followed those in the East, reporting his evidence in the "Mineral Resources of the United States." Turning first to the West, the best known thus far, and the most promising region, is that of the Black Hills. Here again the most prominent locality is an isolated low granitic hill in the central portion of the Hills, near Harney City, where the Etta Mine, the most developed property, is located. The vein, which has a concentric form and varies from a few feet to 2 to 3 yards in thickness, is a greisen carrying tinstone. As yet the percentage of tin in this rock has not been determined in a large way, but, roughly, 2 per cent. has been estimated, though tests of fair lots made for the owners of the Harney Peak Tin Mining, Milling and Mfg. Co. have shown considerably higher figures. Good authorities estimate that it would pay to mine and crush rock carrying only 0.3 per cent. of the metal. The Harney Peak Company have produced a few hundred pounds of tin in a small way, and have ordered the crushing machinery for a large plant. They have not, however, as yet, according to recent advices, decided upon what type of concentrating machinery to adopt, so that it will take some time before the long-promised rush of American tin from this locality will appear in the markets to stagger the bulls. A number of other tin deposits have been discovered in the Hill City district, and the area is constantly extending by new finds. In Wyoming tinstone has been discovered at Nigger Hill, near the Dakota line, in the northwestern part of the Black Hills, forming the extreme northern prolongation of the Harney Peak tin region. All these are mere prospects as yet, but they do hold out the promise that a few important producing mines may be developed. Enough is known now, taking the Black Hills collectively, that before long tin will come from that section—in what quantity the future must develop. A number of localities are mentioned in other Western Territories, but as yet they deserve little attention.

In the East efforts have been made during the past decade to work a deposit at Winslow, Me., and in a more persistent manner at the Broad Arrow mines, Alabama, where a stamp mill has been crushing a fair grade of rock, but difficulties were encountered in the washing machinery, which it is claimed are now overcome through the introduction of the Frue vanner. A good deal of prominence has been given of late to the tin discoveries in Rockbridge and Nelson counties, Va., and Mason and Cabell counties, W. Va. In this section of the country, the Virginia Tin Mining and Mfg. Co., a Philadelphia organization, have been the most active, and it is stated that they will soon ship some tinstone to England. As yet, however, comparatively little work has been done in the East, the Black Hills remaining the most developed locality.

West Indian Confederation and Reciprocity Treaties.

For two years past the people of most of the British West Indies have been in an unhappy frame of mind in consequence of the decline in sugar, the high salaries paid to officials and the by no means moderate duties imposed on flour, provisions, &c. The Jamaicans complained loudest and took the most energetic steps to improve the position of British West India sugar planters and the people at large. They cast around for an intimate union with the Dominion of Canada, and while working in this direction with doubtful success, Canada not being anxious to forego the revenue on sugar, molasses, &c., there came a ray of hope from the United States in the fall of last year, when our outgoing Administration was pursuing reciprocity treaty schemes with our southern neighbors. When these hopes failed the federation scheme was put forward in a more tangible shape, but met with no better success. It will be remembered that early in the year Lord Granville wrote to Minister West that it was impossible to accept the reciprocity treaty proposals of the United States, that they would revolutionize the conventional stipulations which govern the commerce of all nations, would render the favored-nation clause a fruitful subject of dispute, and would infringe upon international law. Lord Granville minutely criticized the points of the proposed treaty. He expressed his regret that he was compelled to reject it, and hoped that an agreement would be effected sooner or later. Lord Granville forwarded a copy of this despatch to the Colonial Office, accompanied by a note in which he said that the concessions proposed by the United States were more apparent than real, and that the proposals lacked the essential elements of stability. Recently a deputation headed by Mr. Tennant, M. P., urged upon the Secretary of the Colonies the necessity of the Government fulfilling the proposed trade convention between the British West Indies and the United States. The deputation pointed out that the United States were willing to accept West Indian produce upon favorable terms; that the United States and England were the only markets those colonies had, and that they would be reduced to starvation unless allowed to trade with the United States. Lord Dunraven, on behalf of the Colonial Secretary, replied that the Government had only recently taken office, but the colonists' claims would receive the utmost attention; that the Government was already making inquiries into the matter.

But what will be the policy of our new Administration in regard to reciprocity treaties? That is a question that will not be clearly defined until Congress meets and the President's message is delivered. Meanwhile it is conjectured that instead of making reciprocity treaties allowing the raw sugars of certain colonies to come into the country duty free up to a certain standard, and charging the present duty on sugars from colonies or countries not so favored, the present Administration will propose to admit foreign raw sugar duty free, and indemnify the Louisiana planters direct for ceasing to protect their raw sugar, while continuing to tax all sugar above a certain grade, as heretofore, and also refined. Should Congress indorse a scheme of this kind, all the hopes of West India planters of enjoying special advantages over the planters of Brazil and the East Indies would be disappointed, while the United States would avoid the entanglements inseparable from reciprocity treaties, and yet stimulate trade with all the countries seeking our market for the sale of their sugar.

American trade with the British West Indies in 1883 and 1884 was as follows:

Calendar year.	Domestic export.	Import.
1884	$7,642,217	$9,824,347
1883	8,615,692	10,087,929
Decrease	$973,475	$263,582

There has probably been no decrease in bulk, the falling off arising from a decline in prices. Sugar and molasses were the chief articles we received; thus, during the fiscal year 1884, no less than 180,951,818 pounds of sugar and 1,346,071 gallons of molasses, amounting together, at low prices, to $6,165,134, against the following sugar and molasses imports during the 15 years preceding:

Fiscal year.	Brown sugar.	Molasses.
1869	$3,697,519	$1,170,576
1870	3,664,709	807,558
1871	4,909,097	606,870
1872	6,733,618	773,037
1873	927,398	387,866
1874	790,616	542,555
1875	1,434,445	868,821
1876	844,144	1,592,554
1877	3,086,357	1,008,979
1878	2,875,648	802,401
1879	1,184,933	406,110
1880	2,450,810	633,629
1881	3,377,390	678,304
1882	2,902,845	550,335
1883	4,936,290	520,830

The above figures show that we are doing quite a large trade with the British West India islands, notwithstanding the absence of treaties. Sugar has improved 25 per cent. in value since April last, and the planters are in a more cheerful mood. But, although the outlook is less gloomy just at present, federation schemes are cropping up again. Thus an effort which has been only partially successful has recently been made by the Colonial Office to improve the government of the Windward Islands. These are five in number, consisting of Barbadoes, Grenada, St. Lucia, St. Vincent and Tobago. The five islands have hitherto been under one Governor, who has resided at Barbadoes, and that island alone has enjoyed a representative Legislature. The part of the scheme which has been carried out is the administrative union of the islands under one Governor, but the opposition to legislative confederation has so far been so strong as to defeat the project. Mutual jealousy, fears of increased taxation, and a desire for complete self-government, seem to be the obstacles to the scheme. The entire group of the Windward Islands has an area of about 800 miles, and a population of 311,400.

If federation appears difficult between islands grouped close together, it is to be apprehended that a federation between the Trinidad and the Leeward Islands, Jamaica, Turks' Island, the Bahamas and Bermudas will present almost insuperable obstacles through the diversity of interests and the distance separating several of them from the rest. We readily admit that for many reasons federation may appear desirable, and that from a national point of view the desire to draw politically and economically closer together is natural, but the realization is evidently beset with great difficulties. The same may be said of a union between Jamaica alone and Canada, in view of the distance and a still more irreconcilable difference of interests.

The Employment of Children in Mines.

The new mining laws of Pennsylvania in relation to the employment of boys are now fully in operation, that applying to the bituminous regions having gone into effect on the 1st of July, and that to the anthracite regions on the 1st of August. Under the provisions of these laws no boy under the age of 12 years can be employed inside the bituminous coal mines, nor under the age of 10 about the outside workings. In the anthracite regions these ages are respectively 12 and 14. In pursuance of the provisions of this law, large numbers of boys have been discharged all over the State, especially in the anthracite regions, where they have been more generally employed. Some authorities estimate the number so discharged as upward of 10,000, which is probably somewhat exaggerated, as the last census showed but 8337 persons of 15 years and under employed in all kinds of mining in the State. These have been worked as door-tenders, drivers, assistants to the miners, and at other work inside the mine, while those outside the mine have usually been slate-pickers. It is reported that some of the miners are not at all pleased with the passage of the law, which they claim is premature and will entail great sufferings among the mining population, especially when, as is sometimes the case, these boys are the sole or partial support of families. Generally, however, the law is heartily approved by workingmen.

Though the employment of children in the mines of the United States has never been accompanied by the horrible features that at one time disgraced English collieries, it was nevertheless high time that the restriction on their employment incorporated in this law should have been enacted. The laws on this subject in Great Britain, wrung out of an unwilling legislature by the indignant moral sense of the people, marked an epoch in the history of industrial legislation, emphasizing the right of a legislature to interfere to protect in the interests of the State large classes of people, even though, as shown at that time, those classes did not desire to be benefited in the way marked out by the legislature. Forty years ago, when the first of these laws relative to the employment of children in mines was under consideration, it is a remarkable fact that quite a number of petitions from miners against the enactment of the law were presented in the House of Commons, just as now it is reported that some of the miners in the anthracite regions are opposed to the new mining laws, and for the same reasons that were then urged, viz., that the exclusion of children from labor would frequently cause great distress.

It will be remembered that at the time the scale for rolling-mill wages was signed in Pittsburgh for the season 1885–86, the rate to be paid for sheet-iron rolling was left an open question, to be settled by committees to be appointed from the manufacturers' and workingmen's associations. These committees met finally on Wednesday, the 26th ult., but failed to reach a conclusion as commit-

tees, and the sheet and jobbing mill scales have therefore been presented to each mill in the West for its signature. Most of the mills in Pittsburgh and the West outside of the Wheeling district have either signed the scale and are running, or are working on the rates provided for in the scale. The mills in the Wheeling district are idle, refusing to sign. By the terms of the scale as presented to the individual mills there is no reduction in the price of rolling sheet iron No. 18 and thinner, the prices ruling for several years past being those still in force, $8 a ton being paid for rolling No. 24 sheet iron This pays the roller, catcher, rougher, heater and shearman. For iron No 17 and heavier, rolled on what is known as a "sheet and jobbing mill," the prices are 10 per cent. less than last year, provided a full turn's work of these sizes be made.

The Amalgamated Association.

The *Labor Tribune* comments upon a recent editorial, in which we took the ground that, notwithstanding the different views that might be taken of some of the methods of the Amalgamated Association, it was a power and a determining force in connection with labor. It says:

> One will naturally ask himself the question, What's up? when the (*Iron*) *Age* comes out this way, so contrary to the tune it has always sung, without warning nor explanatory notes accompanying. Its entire article from which the foregoing is taken is free from unfair criticism. Are we to infer that the (*Iron*) *Age* has retired from its old position regarding the association and is now fully convinced it was mistaken when it alleged in May that the organization was never so weak.

The Iron Age has not retired from the position taken in May, and has had no reason to change the opinion expressed at that time. That the Amalgamated Association has been a power in labor matters no one will deny. We have never denied it, but we assert that in the past two years at least its power has not been in its own strength, either in numbers or resources, but in the weakness of the manufacturers. We repeat, and know whereof we affirm, that never in its history was it so weak as when it entered upon its contest this year. The statement put forth at the time of its recent annual convention as to its strength and income were far from the truth. The report went abroad that it had some 20,000 members and some $70,000 of invested funds, when in reality it had not 4000 members in good standing and not $15,000 in its treasury.

We are aware that in previous years it has had from 25,000 to 30,000 members and a very large fund, but it has of late not only been reduced in actual membership, but it has practically lost entire trades, as the nailers and Bessemer steel workers, and has been threatened with the loss of others. It had at one time an organization in every mill in the West but two. Now it is without a lodge in entire sections. It has but two or three lodges in the whole East. It was in view of these facts that we asserted that the organization was never so weak. And yet in its very weakness it was strong through the weakness of the manufacturers, and was able to do just what we claimed for it. It is not to the principles, or the power, or the existence of the Amalgamated Association that we object. It is to some of its methods, to its refusal to recognize evident facts and shape its course in accordance therewith. The Amalgamated Association in many respects has been a great benefit to the iron manufacturers, but in saying this we are not necessarily bound to indorse all its claims nor to approve all its methods.

Mr. J. P. Witherow, of Pittsburgh, informs us that there are now being built five Clapp-Griffiths plants—one for the Western Nail Company, Belleville, Ill., General Powell, president; one for the Port Henry Iron and Steel Company, Port Henry, N. Y., T. F. Witherbee, general manager; one for the Pottsville Iron and Steel Company, Pottsville, Pa., C. M. Atkins, president; one for Bailey & Shoemaker, Glasgow Iron Company, Pottstown, Pa., and one for the Paxton Rolling Mills, Harrisburg, Pa., Col. Henry McCormick, president. These plants have 3-ton converters, and Mr. Witherow claims, on the basis of work performed at the Oliver plant, that they will be able to produce 100 tons of steel ingots in 12 hours, at a cost of $5.50 above the cost of the pig, this estimate including 12 per cent. waste, labor, fuel, ferromanganese and contingencies. The plants named will, it is expected, be in operation between the 15th of October and the beginning of next year. Meanwhile negotiations are proceeding with four other distinct companies, so that the list of Clapp-Griffiths plants may grow before long. As it is, the capacity building and completed is 250,000 tons per annum. With the other plants now being built using the ordinary Bessemer process, and the old Bessemer and open-hearth mills equipped for making blooms, billets and shapes, the next year will witness a gigantic struggle between the producers of wrought iron and the makers of mild steel. How far the different processes for making the latter will clash with one another remains to be seen.

Elsewhere in this issue we reproduce an article from one of our English contemporaries, very clearly exposing popular fallacies as to the value of condensers, and demonstrating in a most conclusive manner that the real and apparent economies resulting from their use are very often extremely far apart. That this is true will no doubt be seriously questioned by some, a fact shown only too well by the existence of many steam plants which, with comparatively few alterations, so far as condensing apparatus is concerned, might be made to yield vastly more economical results. From our own experience we know that the whole subject of condensers, in fact, seems to be a profound mystery to many who, in behalf of their own interests, should be reasonably well informed about it, and who accordingly are unable to recognize the importance of some factors in steam-engine economy which demand the closest attention. To such a careful perusal of the article on "Offsets to Economy in Condensing Engines" will prove useful in many respects, and suggest some things which might be investigated with interest and profit.

The Trade in Metal Manufactures in Mexico.

The following extracts from a report upon Mexican trade and resources will be found of general interest. It was prepared by an agent who visited Mexico in the interest of the following hardware houses: Hubbard, Bakewell & Co., Pittsburgh, Pa.; Nicholson File Company, Providence, R. I.; C. J. Osborne & Co., Newark, N. J.; W. A. Ives & Co., New Haven, Conn.; Eagle Lock Company, Terryville, Conn.; Norwalk Lock Company, South Norwalk, Conn.; Bridgeport Brass Company, Bridgeport, Conn; Peck Bros. & Co., New Haven, Conn.; New Haven Clock Company; Whitney Arms Company, New Haven, Conn.; Parker Bros., Meriden, Conn.; National Mfg. Co., New Haven, Conn.; B. Manville & Co., New Haven, Conn.; Mr. James L. Sharpe, New York City. The Boston *Commercial Bulletin* prints the following extracts from this report, dealing with the subject of general trade, as follows:

I have found that the railroads brought into Mexico a large amount of implements, tools and metal material, ostensibly for construction, but which has gone a long way to supply the demands of this market. Sales of these supplies have been going on for two years at a large discount. I know of 12,000 axes, as one instance, brought into Mexico duty free for railroad construction, several thousand of which still remain in warehouses waiting purchasers at less than cost. Railroad iron is freely used here for beams, girders and supports in all sorts of construction, imported duty free. The increase of imports in 1882–83 was not a legitimate outgrowth of trade demands. It was largely speculative, and, instead of the present severe depression of trade being exceptional, it may more reasonably be considered to be the natural reaction from an abnormally prosperous period during railroad building. A large amount of money was then put in circulation in high wages paid for labor that was accustomed to receive 25 to 40 cents per day, which is about what it gets now. The completion of the Mexican Central Railroad, the cessation of work on the National Road, the slow effects of the railroads in developing wants, the short grain crop of last year, and the enormous steal of some $12,000,000 public funds by the Gonzales Government of 1884, are quite sufficient explanation of the want of money in circulation, the want of confidence in trade, and the consequent business stagnation. The United States is feeding and drinking Mexico to a larger extent than we sell metal manufactures in this market. The country yearly produces and consumes $13,000,000 of pulque and other distilled or fermented drinks from the aloe plant, and imports over $1,000,000 of whiskey, wine and beer, of which we supply over $300,000. These facts are suggestive when we talk of the large outlet for our surplus products in the trade of Mexico.

The vegetable, grain, beef, mutton and fruit production of Mexico, the cotton and woolen and some other manufactures, and the food and clothing imported, all of which are the items that make up the actual subsistence account of the country, amount to some $200,000,000 a year, or $20 to each inhabitant for 12 months. This is less than 28 cents per day in wages for one half the laboring population working only one-half the year. Incredible as it may seem, the fact is, nevertheless, that the food and clothing imports of this country are consumed by less than 2 per cent. of the total population. One hundred dollars is a fair average of the amount of consumption per capita of imported goods of this character, which amounts to less than $13,000,000 a year, and is consequently consumed by less than 130,000 out of 10,000,000.

These facts show the actual limits of trade in this country. They show a standard of comfort so low that American manufacturers must needs make a specialty of cheap and inferior goods to come within the purchasing power of the general trade. Having elements of population in Europe that demand equally low-grade goods, Germany more than any other nation has been able to place her inferior manufactures here, to the exclusion of many lines of our own, and her merchants have patiently built up a business control by their commercial familiarity with the language, and with all the details of an export trade whose peculiar demands we have carelessly disregarded. By accepting the business chances of this country, which is the proper term to use instead of business method, principal or system, the Germans have taken risks in credit and in outlay of capital at cheap interest, to which their success affords the only necessary comment. These facts show also that railroad building cannot infuse energy and ambition into the ranks of universal poverty, in the absence not only of means, but of substantial incentives to better its condition. There is no public land and no public surveys. There is no middle class. There is no foundation in the political and social economy of the country to build up a prosperous middle class, which is the life of trade and the assurance of credit. The agricultural property is held by less than 6000 land owners, who own nearly as many great *haciendas* and are also the owners of large numbers of the smaller *sitios de labor*, or farms of less than 200 acres each, and many of which, if they have other owners in fee, are merely dependents on the landed barons of the country.

The immense *haciendas* often spread over an area of many miles, monopolizing the locations of natural water supply, and include populous villages of peons, whose proprietors exercise complete sovereignty over the labor of the surrounding country. The wages paid, or the allotment of shares in the crops, are eaten up by the advances made in food and clothing, and in spite of republican theories or of actual legislation the custom still prevails to hold to service the laborer who remains in debt. The practical operation of this practice is that the proprietor considers it for his interest to keep his labor in his debt. Our profitable and steadily increasing customers are: 1. The *hacendados*, or large grain farmers and proprietors of sugar, coffee and tobacco estates, the mill owners and the enterprising prospectors in mechanical industries, all of whom are purchasers of machinery and who prefer to buy directly from the manufacturer. 2. The interior dealers in cheap and miscellaneous merchandise, who heretofore have been accustomed to buy of the few importers who ruled the trade, whose accounts run from 8 to 12 months, making partial payments in the mean time, and paying interest after four and six months. It is to these two sources that our trade must direct itself in future in preference to supplying the orders of a dozen German commission houses. The field is opening largely for farm machinery and implements, steam engines of 2 to 20 horse-power, and all the appliances for the development of various small industries.

Many of the luxuries demanded by new ideas of material progress are coming into larger use by the class who hold the wealth of the country. Improvements in sugar, coffee and grain culture are making notable progress. There is concealed wealth in the country in the hands of the land owners, law makers and privileged class, and the disposition to adopt any really beneficial improvement is, in nine cases out of ten, backed up by the ability to pay and by an intelligent appreciation of the advantages to be gained. The merchants of the interior who handle goods at second hand are largely Mexicans, with many Germans. The old importing houses of Vera Cruz and of this city also have branches at important interior points, notably A. Gutheil & Co. and Elcoro, Lopez & Co., and boast of a firm hold on the trade. There has heretofore been one or two mercantile houses or branches at every important trading center which have done the bulk of the trade of the locality, about a dozen houses altogether in Mexico, but I have found that many of these concerns are steadily losing ground by reason of the facilities afforded by the railways to buy goods directly in the United States, the low freight rates, the new method of our manufacturers' agents in selling goods at prices for delivery in Mexico, and because of the enterprise and good sense of those who realize these controlling advantages.

Some vague ideas in the United States about competition with European goods here call for more enlightened information. Before the Mexican Central Railroad was built, more than 75 per cent. of the commerce of this country was conducted through the port of Vera Cruz. The large importing houses were then, as now, located at Vera Cruz and in the City of Mexico, and the export and import trade was substantially in the hands of a close corporation of German importers. Not an American nor English commercial house exists here. In the interest of this great trade monopoly there have for years existed practices of official fraud whereby the Mexican tariff duties were systematically evaded, resulting in building up a commercial power in Mexico stronger than the Government itself, because these houses always commanded large resources of capital in Europe, and a common interest bound them together. When the Government in any emergency wanted financial aid, these large importers have come to its relief, and in the long run have been amply compensated. Through various forms of illegitimate practice European goods have come into the country at Vera Cruz, not by secret smuggling, as on the Rio Grande, but by arrangements which resulted in the payment of only partial duties or full duties on fradulent classification, and always by safe methods with which the superior authorities did not see fit to interfere. Administrators of customs at Vera Cruz have made handsome fortunes, and this whole business has always been going on with prejudice to the trade of the United States. Detailed statements of the exports of the country are constantly made with great minuteness, but no similar statement of imports is ever published. The reason is obvious. Under these circumstances the most convincing facts about the equalizing principles at work in the organized industry of the United States as against the cheap labor of Europe, and which show that the relative export cost of manufacture is brought nearly to a common level, are manifestly of no service. Even if our goods cost less laid down in Vera Cruz than those from Hamburg or Liverpool, they would not get into the trade of this country except by fighting their way. The cheaper cost of European production, therefore, has not been the immediate obstacle to our dealings here, and, if it was, the opening of a great rival *entrepôt* at El Paso, with cheap rates of transportation from all our manufacturing centers, has now removed this difficulty in competition.

The fraudulent system of importation at Vera Cruz, a special capacity to deal successfully with all manner of annoyances incident to this trade, and an adaptation to get along with customs and prejudices in an entirely different way than by the aggressive habits of Americans, have given the Germans an established control. The bitter opposition of these houses to the American railroads and the American trade is quite natural, as also the fact that the real cause of it lies deeper than the matter of the discriminating freight rates of the Central Railroad. The breaking up of the commerce of Vera Cruz and the shifting of the interior trade into railroad channels really means the breaking up of a corrupt and fraudulent monopoly, by which European goods have so long been forced into Mexico against the trade of the United States I know of three Vera Cruz houses on the eve of removal to El Paso, being sensible of the fact that a commercial revolution is going on both in the channels and methods of trade in this country. Goods shipped from New York and Chicago by rail reach Mexico at a rate which in some cases is less than the charges from Vera Cruz to Mexico, and the custom house and forwarding expenses are 50 per cent. less than at Vera Cruz, where very few invoices of American goods escape a fine for the most trivial cause. If my information is correct, not a custom-house fine has been imposed on an invoice at El Paso passing through the hands of the customs agent of the Mexican Central Railroad. All the imports from Northern Mexico are now from the United States. Instead of ordering goods two or three times a year from the importers in Vera Cruz and Mexico, interior dealers are now seeking such relations with American houses as will enable them to order small and frequent invoices to be laid down here at delivery, instead of f.o.b., prices. Rates of local exchange are, of course, growing less, and as the facilities of transportation increase here the system of long credit loses its hold on the trade. It needs only proper co-operative action by our manufacturers, with urgent efforts in behalf of the treaty pending in Congress, to give us nine-tenths of this trade in all metal goods and 75 per cent. of all other Mexican imports.

What I have said about the extent and value of this trade substantially meets the inquiry as to future prospects, but there are some other facts about this country which have a practical business bearing. The Spanish language is not a commercial language. It fails to supply a commercial vocabulary sufficient for an extensive trade. Our manufacturers' catalogues are often put into classical Spanish, and terms used which are quite as confusing to Mexicans as English words. This poverty of the language has been one of the great difficulties of a proper classification in the Mexican tariff, and continually gives rise to vexatious proceedings. Many articles of commerce strange to the uses of this people can be designated in no other way than by using a dozen words in place of one. In other Spanish countries conventional terms have come into use by adopting English words with a Spanish terminology. The same process is now at work here, and to acquire the English language itself is the ambition of most Mexicans. With these facts in view it is not difficult to understand how the intelligence of the people slowly accommodates itself to wise commercial legislation or to rapid progress in international relations. It is not generally from perverse motives that the railroads meet with hostile ideas in their administration, or that our trade encounters obstacles that induce us to leave it alone. It is owing to an almost absolute want of practical commercial knowledge of an appreciation of the value of systematic and consistent business dealings, and of the economies that enter into the profits of trade.

The Mexicans exhibit perplexing elements of character. They are industrious, but not thrifty. While Mexico is the market for the cheapest and most inferior goods, the population is addicted to vanities of a luxurious and costly nature, to which the import trade contributes very little except jewelry. Hats of uncut felt, of gay colors, and adorned with silver embroidery, costing $5 to $50, are everywhere met with. Saddles and bridles costing $100 to $500 are in general use. The country is full of small silver coin used for buttons and often as ornaments down the outside seam of the pantaloons. The national vanity shows itself among the beggars as well as the most profligate class. Women will go without food, or reduce their subsistence to beans and bread, to take chances in the lottery, and the men will expend their last dollar on a magnificent *sombrero*. No country affords a more deeply interesting study, and while it is difficult to perceive that it is making any progress at all, so far as regards the great body of the population, it is easy to see that it is patiently evolving ideas of what a better condition means.

The chronic disposition to defer everything to *mañana*, and the slow-moving thought and physical action so annoying to Europeans and Americans alike, while it adds to the cost of every article in trade, is not wholly without reason in this peculiar climate. At the high altitude of the Mexican plateau—7000 to 9000 feet above sea level—along which the Central Railroad is built, the air is thin and dry, intensely rarefied, evaporation is rapid, oppression on the heart common to all strangers, and physical and mental exertion has limits that seriously interfere with business energy. The fact is so pronounced that it is something of a problem itself, without reference to other obstacles, whether any foreign colonization will ever sustain itself on this plateau.

The tendency of industrial development and the large increase of our trade is not along the line of this extraordinary altitude. Until the Central Road strikes the region of Aguas Calientes it passes through 800 miles of uninviting country destitute of the three great civilizing forces, water, timber and coal. South of this point, spreading out on either side of the Central Road at Lagos, over a valley that reaches across the country from Guanajuato to Guadalajara, about 200 miles square, is the richest agricultural region in Mexico. Further south into the valley of Mexico the soil produces in some sections three crops of corn and wheat, and in others two. Corn is cropped in some places in 40 days from the seed. In the rich sugar belt of Morelos, and all through Jalisco, Michoacan, Guerrero y Oaxaca, there is good promise of improved industry and trade development. Water and timber are here comparatively abundant, the climate is rid of of the fevers of the coast and the ill effects of the plateau, business dealings in these States have always been satisfactory, the *hacendados* are rich, and the people have those purely native characteristics which give hope for the future of Mexico, and have so far produced the best men of the country.

Our trade should direct itself to these sections where transportation facilities are rapidly opening the way. In the important matter of mercantile credit I have made as careful and conscientious investigation as can probably be had in a country where social and business conditions are such as exist here. I have obtained a list of all commercial houses and the principal dealers in the interior, whether engaged in special or general lines, the active mining companies and the leading *hacendados* in the different Mexican States. Against preconceived impressions, and doubtless surprising to you, the matter of mercantile credit in this country bears very favorable comparison with that of our home trade. As a rule, commercial houses in Mexico are prudent and conservative, and I have found that dealers in the interior, while accustomed to give and ask long credits and slow in payments, in the end pay their bills, make few compromise settlements and still fewer business failures. At Mazatlan, Acapulco, Guaymas and Monterey the commercial houses are mostly of long standing, sound and reliable. The railroads are causing more changes in Central and Lower Mexico, but dealings are for the most part reliable. If a customer bears credit at all he can be trusted fully without degree of confidence. The Germans have better business habits, but the sense of moral obligation in a square business transaction can no better be relied on than in the case of a respectable Mexican dealer. Few litigations, few cases of bankruptcy, few unpleasant financial dealings, occur, while the instances I have encountered of sharp practice by Americans have been considerable and humiliating Several commercial houses have shown me that 85 to 90 per cent. of their sales of credit in a series of years have resulted in satisfactory collections, and on authority of Mr. Warner, of the American Button Hole Sewing Machine Company, of Philadelphia, I make the statement that in $700,000 business in 10 years in Mexico the concern have not lost a dollar by fault of any dealer with whom they had connection. Credits are shortening, and the profits of 100 to 150 per cent., which have heretofore ruled in this trade, are no longer possible.

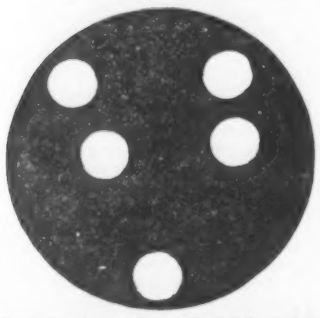
In conclusion, after all this detailed inquiry, I am satisfied that the time has come for placing here a commercial house, distinctly American in representing our manufactures, tolerating something of Mexico in its own customs, and borrowing a good deal from Mexicans in their manners. There are no business booms to be expected in this country under any circumstances, and the trade is safer for this reason, although profits are less. If the investment of $60,000,000 American capital in 2000 miles of railroad is worth protecting, there can no more effective means be used to protect it than to show equal enterprise in the sale of our goods. We must stop peddling in this country, and stop skirmishing with catalogues and traveling agents, if we wish to gain this trade, win its confidence, and give dignity to our commercial relations. Our manufacturing capital, which can do its exporting without the medium of commission houses, should combine in placing here a solid commercial house able to successfully compete with European importers, and provide for the leading demands in the import trade. A general sample depot is urgently needed in the City of Mexico, which will continue to be the commercial and financial focus. It is now an unavoidable requisite in handling this trade largely that we should give prices for delivery, freight and duties paid. It is profitable to do so. Advertising and catalogues awaken a dull sort of interest, but do not sell many goods. I have seen a pile of our commercial literature mailed from New York and Chicago, cast aside in a post office in Mexico, because of torn wrappers or illegible address. In a population where 16 daily papers have an average circulation of only 700 copies each, printer's ink will do small service, but personal work in connection with an intelligent understanding of the people will bring very satisfactory results.

At the recent session of the convention of the National Electric Light Association, in this city, Mr. W. N. Leggett, of Detroit, read a paper on the "Power System of Electric Lighting." This was a story of the experience of his company in lighting the streets and public places of Detroit. The expense of putting an arc light at every street corner prohibited the employment of that method, and in addition there was the great inconvenience to the eye from the low location of such bright lights. A little over a year ago, after a controversy with the gas interest, his company made a bid for lighting the entire city of Detroit, comprising an area of 10½ square miles, and secured the contract. The territory included in the center a business section of about 1 square mile. Surrounding this is a belt of about a mile in width, densely shaded and containing fine residences, and outside of this a semi-suburban section. Ninety skeleton iron towers were built, some of them being 175 feet high, and the others 150 feet high. These were located in triangles 1000 to 1200 feet apart in the center of the city, and 2500 to 3000 feet apart on the outskirts. On these towers were placed an aggregate of 358 lights of 2000 candle-power each. The result as described is that the entire city is lighted as if by an artificial moon. The rear yards and alleys are made as light as the streets. The system has received strong indorsement from the chief of police of the city, the press, and from other sources. The residents of the suburban sections of the city, during the long controversy preceding the adoption of this method of lighting, fearing the success of the gas and naphtha companies, went to the length of destroying lamp-posts. Electric lighting, it is believed, is now permanently established in Detroit, to the general satisfaction of all except the gas companies, who have lost a profitable branch of their business.

The Collier White Lead and Oil Company, of St. Louis, are running their sheet-lead rolls and their pipe department, the latter being favored with an increase of orders. Their large shot tower is being crowded to its full capacity to meet orders, the season for shot buying having already opened up actively. The other two shot making concerns are also working to capacity limits.

STEVENS' RIFLES AND OTHER ARMS.

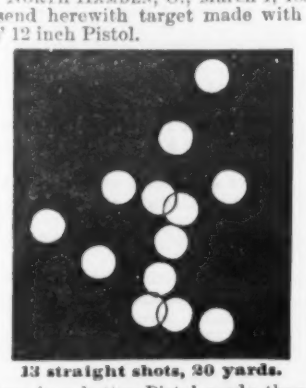
DUBUQUE, IOWA.
Please find enclosed result of



5 successive shots, 30 yards, with Stevens' Open Sight Rifle.

To say the gun pleases me is "drawing it mild." I knew the extraordinary shooting power of the Stevens' arms, but these shots surprise me. F. D. S.

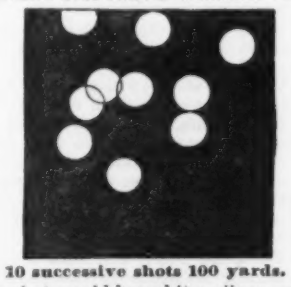
NORTH HAMDEN, O., March 1, 1885.
I send herewith target made with Stevens' 12 inch Pistol.



13 straight shots, 20 yards.

If there is a better Pistol made than the Stevens', I should like to see it. A. P. W.

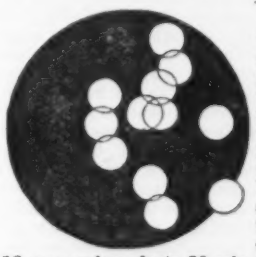
DUNDEE, N. Y.
My Stevens' Rifle is the most accurate that I have ever owned. I enclose a target.



10 successive shots 100 yards.

Every shot would have hit a silver quarter of a dollar, and seven would have hit a silver dime. A. R. O.

KENT, OHIO.



12 successive shots 30 yds. by Mrs. E. M. W.

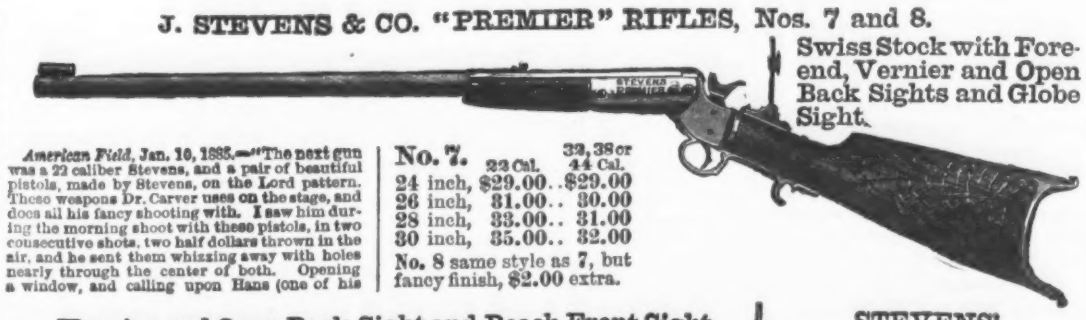
I have a Stevens' Shot Gun and Rifle that give perfect satisfaction, & a Hunter's Pet which I bought for my wife that can't be beaten. It is an 18 in. barrel, using 22 short cartridge, which she has done some fine shooting with. I enclose you one of her targets shot New Year's Day. J. R. W.

I have been operating a shooting gallery for a number of years, and have kept nearly all makes in my racks. I have noticed that the Steven's Rifle is used by ninety-five out of every 100 when competing for prizes, so I gave away all other makes as prizes, and

5 successive shots
40 rods.

now have only the Stevens'. With five other gentlemen of this city I tried the Stevens' Rifle just received, first at 75 yards, and kept moving the target farther away until we got it 40 rods. I send you the target that Mr. James O'Neil made. If you can find any one who thinks he can beat his score with a 22 caliber, 40 rods, send him along.—C. O. F. Council Bluffs, Iowa.

J. STEVENS & CO. "PREMIER" RIFLES, Nos. 7 and 8.



Swiss Stock with Fore-end, Vernier and Open Back Sights and Globe Sight.

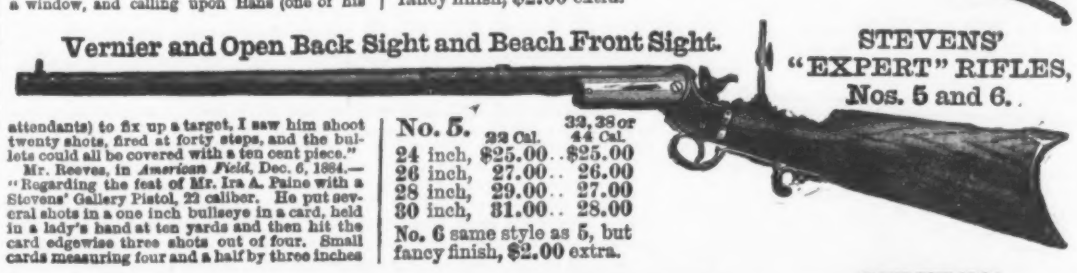
American Field, Jan. 16, 1885.—"The next gun was a 22 caliber Stevens, and a pair of beautiful pistols, made by Stevens, on the Lord pattern. These weapons Dr. Carver uses on the stage, and does all his fancy shooting with. I saw him during the morning shoot with these pistols, in two consecutive shots, two half dollars thrown in the air, and he sent them whizzing away with holes nearly through the center of both. Opening a window, and calling upon Hans (one of his attendants) to fix up a target, I saw him shoot twenty shots, fired at forty steps, and the bullets could all be covered with a ten cent piece."

Mr. Reeves, in *American Field*, Dec. 6, 1884.—"Regarding the feat of Mr. Ira A. Paine with a Stevens' Gallery Pistol, 22 caliber. He put several shots in a one inch bullseye in a card, held in a lady's hand at ten yards and then hit the card edgewise three shots out of four. Small cards measuring four and a half by three inches were then substituted with three spots in the center of the card like the three of hearts, when he put a shot through each heart. The next feat was firing at a walnut and grape placed on the top of his wife's head, on a small pedestal about one inch high. He knocked the grape off the first shot, and then the walnut at the second shot, all at the same distance—ten yards."

No. 7.	22 Cal.	32, 38 or 44 Cal.
24 inch,	$29.00..	$29.00
26 inch,	31.00..	30.00
28 inch,	33.00..	31.00
30 inch,	35.00..	32.00

No. 8 same style as 7, but fancy finish, $2.00 extra.

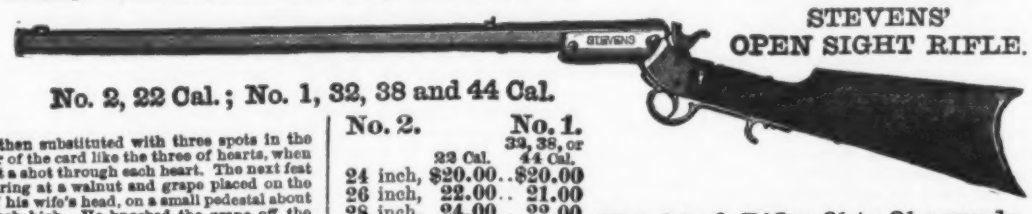
Vernier and Open Back Sight and Beach Front Sight.



STEVENS' "EXPERT" RIFLES, Nos. 5 and 6.

No. 5.	22 Cal.	32, 38 or 44 Cal.
24 inch,	$25.00..	$25.00
26 inch,	27.00..	26.00
28 inch,	29.00..	27.00
30 inch,	31.00..	28.00

No. 6 same style as 5, but fancy finish, $2.00 extra.



STEVENS' OPEN SIGHT RIFLE.

No. 2, 22 Cal.; No. 1, 32, 38 and 44 Cal.

No. 2.	22 Cal.	No. 1. 32, 38, or 44 Cal.
24 inch,	$20.00..	$20.00
26 inch,	22.00..	21.00
28 inch,	24.00..	22.00
30 inch,	26.00..	23.00

Fancy finish, $2.00 extra.

Weight of Rifles 6½ to 8½ pounds.

Stevens' "Crack-Shot" Rifle costs $6.00 more than Nos. 1 and 2.
The "Crack-Shot" has "Lyman" Sight on stock in place of open rear sight on barrel. Otherwise like Nos. 1 and 2.
All Rifles or Pets are chambered for rim fire cartridges, unless otherwise ordered. On request will chamber for any desired rim or central fire cartridge.

STEVENS' HUNTERS' PET RIFLE.

Weight of 18 inch about 5 1-4 lbs. and good for 40 rods.

22 Rim, 32, 38 or 44 Caliber, Rim or Central Fire, with Combined Sights.
18 inch, $18.00. 20 inch, $19.00. 22 inch, $20.00. 24 inch, $21.00.

With Vernier Sight on Stock, $2.00 extra.

HUNTERS' PET SHOT GUNS.

Same style and price of the above, to use the Stevens' Reloading Central Fire Shell, 38 or 44 Cal. or the U.M.C. Co.'s Berdan Primer, 20 cal. Shell.
NOTE.—Central Fire Hunters' Pet Rifle Barrels and Shot Barrels fitted to same frame when so ordered. Price of 18 inch, extra, $10.00.

Price of 18 inch Shot Barrel,..... $13 00
Mahogany Cases for Pet,..... 5 00

STEVENS' NEW MODEL POCKET RIFLES.

Weight of 10 inch about 2 pounds.

22 or 32 Cal., Rim Fire with Combined Sights.

10 inch.	12 inch.	15 inch.	18 inch.
$12.25.	$13.25.	$15.00.	$16.50.

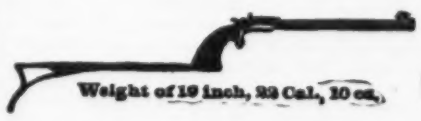
Extra Barrels only, full sighted.

10 inch.	12 inch.	15 inch.	18 inch.
$6.50	$7.50	$8.50.	$10.00.

With Vernier Sight on Stock, $2.00 extra.

STEVENS' NEW MODEL POCKET SHOT GUNS.

For Taxidermists' use, same style and price of the New Model Pocket Rifle, to use the Stevens' Reloading Brass Shells, 38 and 44 Cal.
Mohagany Cases for New Model Pocket Rifles, 10 inch, $2.50; 12 inch, $2.75; 15 inch, $3.00; 18 inch, $3.50.



Weight of 19 inch, 22 Cal., 10 oz.

STEVENS' OLD MODEL POCKET RIFLES.

22 Cal. with Globe and Peep Sights.

10 inch, Plated rest.	Japanned rest.	6 inch, no rest, $7.00. 6 inch, Plated rest.	Japanned.
$11.00	$10.50	$10.00	$9.50

STEVENS' GALLERY PISTOLS.

"Conlin" Model, 10 inch Barrel, 22 Cal., weight 2½ pounds,.....Price, $20 00
"Lord" Model, 10 inch Barrel, 22 Cal., weight 3 pounds,..... " 22 00
"Diamond" Model, 10 inch Barrel, 22 Cal., weight 11 ounces,..... " 10 00

Single-Shot Pistol, 3¼ inch Barrel, $2.50. 22 or 30 Cal.

STEVENS' SINGLE BREECH-LOADING SHOT GUNS.

	Blue.	Nickel.
Plain Barrels, 12, 14 and 16 gauge, weight 6 to 7 lbs.....	$12 50	$14 50
" " " with Extra 26 in. Rifle Barrel, set of loading tools and 25 shells, weight 6 to 7 lbs.....	30 00	32 00
Plain Barrels, 10 gauge, weight 7 lbs.....	13 50	15 50
Twist " 12 and 14 gauge, weight 6½ to 7 lbs.....	15 50	17 50
Laminated Steel Barrels, 12 and 14 gauge, weight 6½ to 7 lbs.....	17 00	19 00
Extra Finish on any of the above,.....		2 50
Central Fire Barrel, 26 in., 32 to 44 caliber, to fit any of the above guns, sighted with combined Peep Globe and Open or Plain Open Sight, extra,.....		13 00

NOTE.—In ordering Rifle Barrels for Shot Gun Frames, it is necessary to send us the frame to fit the same into, as they are all hand fitted. They will be chambered for the Stevens' Reloading Brass Shell, 32, 38 and 44 caliber, or the Union Metallic Co.'s cartridges, 22, 32, 38 and 44 caliber as ordered.

Set of Reloading Tools for Rifle Barrel, extra,..... 3 00

TOOLS, SHELLS, &c.—FOR STEVENS' CENTRAL FIRE RIFLES.

Double Moulds, 38 or 44 caliber,.....$2.00. Single Moulds, 32 caliber,.....	$1 50
Combined Capping and Loading Implements, 32, 38 or 44 caliber,.....	1 00
Capper and Re-capper for New Model Shot Gun, 38 or 44 caliber,.....	0 50
Wad Cutter for New Model Shot Gun, 38 or 44 caliber,.....	0 50
" " " Hunter's Pet Shot Guns, 44 or 58 caliber,.....	0 50
Stevens' 32/100 taper shell, 35 grains.....	0 06
Brass Shells, Berdan Primer, 58 caliber, each.....	0 04
Stevens' Shells, 38/100, 1⅝ inch, 33 grs. and 2½ inch, 45 grs., each.....	0 07
" " 44/100, 2 " 50 " " 2½ " 65 " "	0 08

Mr. CHARLES FOLSOM having associated himself with Messrs. Wiebusch & Hilger, the Headquarters for these Guns are now at 84 & 86 Chambers Street, New York.

SOLD BY ALL DEALERS.

The address of any of these parties can be had on application

Syracuse, N. Y.
A man from Haverhill, Mass., has just come in with an 18 inch Pet, 32 caliber, that we attached a telescope to; he has to-day fired 10 shots at 200 yards, 8 are in a 6 inch circle, and the others near by. W. W. M.

Dundee, N. Y.
.. can truly say I have never seen an imperfect gun from the Stevens' factory. DR. A. R. O.

Crown Point, N. Y.
I killed 5 turkeys out of 6 shots, 40 rods, and then was ruled out. Pretty good for a 32 caliber and wind blowing. F. H. P.

Appleton, Minn.
There are lots of other makes of guns here, and they brag them up so, and I have scooped them all with my plain Stevens' gun. I have shot 12 rods with my gun, at a piece of board 4 inches wide and 6 inches long, and put in 7 grains of shot at that distance. There were 5 of the best guns on the ground, and 3 grains were the best the other makes could do, so I took the cake. S. B.

Crown Point, N. Y.
Just received the 38 caliber Stevens' Rifle. My first target was 4 bulls-eyes and one shot ¼ inch from the eye, out of 5 shots; I then wiped out my gun and made 2 bulls-eyes on a 6 inch target at 200 yards, in succession. You can cheerfully add my testimonial, as I think for accuracy and penetration the Stevens' Rifle cannot be beaten. F. H. P.

Ripley, Ohio.
My Stevens' Rifle is the first in this section of the State, and all who handle it are enthusiastic in its praise. W. B. E.

West Randolph, Vt.
People begin to inquire about the gun that put 3 shots in that card 15 rods. D. W.

Farmington, N. H.
I have a Stevens' Rifle which I claim to be the best in the market. A. D. Y.

Cohoes, N. Y.
My Stevens' Rifle is a perfect beauty, and as fine a piece of workmanship as I ever saw in the gun line. N. R. V.

Winsted, Conn.
Have tested the Stevens' Pet Rifle I got last winter and am more than satisfied; in fact, several have tried it with me against several other makes, and the Stevens' took the lead. H. M. S.

Cleveland, O.
I have used a Stevens' 15 inch new Model Pocket Rifle one year. I used it all last winter in California, killing in all over 150 birds, from a hummer to a pelican, sitting and flying, at from 25 ft. to 250 yards. C. E. S.

Bridgeton, Me.
The shooting qualities of the Stevens' Rifles, I think, are equal to any rifle made. B. W. S.

New York City.
The Bicycle Rifle I purchased of you served me excellently last summer. I made it quite lively for the game; in about 3 hours I bagged 13 squirrels. The excellent shooting qualities of the rifle, as well as its fine finish, elicited general praise. L. S. S.

West Waterville, Me.
I sold a Stevens' 14 bore twist single breech-loader this morning; they shot it 25 rods and killed a heron dead. If any one can beat that we will try again. C. W. F.

State Line, N. H.
I have a Stevens' single breech-loading shot gun, and it can't be beat around here for shooting. I have taken a 4 inch ring 15 rods twice out of three times, that is what I call good shooting for a 14 gauge gun. A. F.

New Lyme Station, O.
The Stevens' are the best little rifles I have ever seen. We have been shooting the 22 short forty rods and doing good shooting. H. L. D.

Colewarden, O.
My Stevens' Pocket Rifle is a splendid shooter. Has done the best shooting of any gun around these parts for the size of the gun—it is 22 cal. and 15 inch barrel. Stevens' Rifles and Guns which I have bought are shooting as good records as this one, and the pocket rifles cannot be beat for accuracy. H.

Baldwinsville, N. Y.
The gentleman I purchased the Hunters' Pet for is much pleased with it. At the first trial he hit a mark the size of a silver quarter 5 consecutive times at 150 feet, which was the longest distance he could get conveniently. He thinks it is perfect. S. C. S.

Omaha, Neb.
I have shot a good many Stevens' Rifles, and of other makes too, but I never struck a poor shooting Stevens' gun. C. H.

Martins Ferry, O.
With my Stevens' Shot Gun, at 75 and 80 yards, I have killed ducks, also a blue crane at about the same distance, seldom missing under that distance. She will drive No. 7 shot right through squirrels. My friend is going to sell his gun and buy a Stevens'. It would make you smile to see his face when I make a successful long shot. D. W. C.

South Stratford, Vt.
I think my Stevens' Rifle is a splendid little gun to shoot. I can hit a place as big as a half dollar 12 rods every time. F. W. H.

Halcottville, N. Y.
I have a Stevens' Hunter's Pet 24 inch, 32 cal., and I have never had it beat yet. S. S. L.

Cayuga, Hinds Co., Miss.
The little Stevens' Rifle I bought last Fall proved satisfactory in every respect. I have made some wonderful shots with it. I killed a hawk 250 yards and squirrels 100 yards. G. W. L., M.D.

Dundee, N. Y.
In regard to its shooting, I never saw a rifle that could equal my little Stevens'. A. R. O.

Ware, Mass.
I have used one of your Hunters' Pet Rifles for a year, and it proves to be a good shooter not only for a short distance but for long distances also. It is only 22 cal., but can do good shooting at 200 yards. W. A. N.

Thomaston, Conn.
I have made 58 out of a possible 60, shooting off-hand, 200 yards, Mass Ring Target. F. A. P.

Bath, Me.
I have three Stevens' Rifles in use and they cannot be beat. J. A. W.

Greenville, S. C.
If I could not get another Stevens' gun of the same make, I would not take its weight in silver for mine, A. I.

Hall's Corners, N. Y.
I saw a No. 5 Stevens' Rifle here; I never saw a better shooting gun. W. H. C.

General Agents,

WIEBUSCH & HILGER,

84 & 86 Chambers St., N. Y.

J. STEVENS & CO.,

P. O. Box 850,

CHICOPEE FALLS, MASS.

THE

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Belt Oil
Post E. L. & Co., Peck Slip, N. Y....44
Bicycles.
Pope Mfg. Co., 597 Washinton, Boston....60
Bird Cages, *Makers of.*
Lindeman O. & Co., 254 Pearl, N. Y.... 3
Maxwell John, 247 and 249 Pearl, N. Y... 7
Bits.
Brown R. H. & Co., New Haven, Conn...58
Bit Braces.
Amidon & White, Buffalo, N. Y....38
Blind Awning Fixtures.
North F. O. & Co., Boston Mass....41
Blocks, Tackle, *Makers of.*
Bagnall & Loud, Boston, Mass....11
McCoy & Sanders, 26 Warren, N. Y....54
McMillan Wm. H., 113 South, N. Y....11
Penfield Block Co., Lockport, N. Y....14
Shubert & Cottingham, Philadelphia, Pa.11
Boiler Feeders.
Automatic Injector Co., Cleveland, O....57
Boiler Plates.
Wm. McIlvain & Sons, Reading, Pa....57
The Seidel & Hastings Co., Wilmington, Del....32
Boiler Scale Preventives.
International Mfg. Co., Cleveland, Ohio.38
Boilers, Steam.
Babcock & Wilcox Co., 30 Cortlandt, N.Y.12
Carter, Allen & Co., Tamaqua, Pa....44
Edge Moor Iron Co., 79 Liberty, N. Y....15
Harrison Boiler Works, Philadelphia....59
N. Y. Engineering Co., 64 Cortlandt, N.Y.36
Wetherill Robt. & Co., Chester, Pa....59
Bolt and Rivet Clippers.
Chambers, Brother & Co., Philadelphia.. 4
Bolt Cutters.
Acme Machinery Co., Cleveland, O....13
Howard Iron Works, Buffalo, N. Y....57
Sellers Wm. & Co., Philadelphia, and 79 Liberty, N. Y....59
Wells Bros. & Co., Greenfield, Mass....43
Borax.
Pfizer Chas., 81 Maiden Lane, N. Y....42
Boring Implements.
Amidon & White, Buffalo, N. Y....38
Boring Machines.
Lawrence Curry Comb Co., 309 E. 22d, N. Y....55
Boxes for Hardware.
Green S. H., 12 Murray, N. Y....36
Boxes, Shelf.
Jones Jesse & Co., Phila., Pa....41
Brass, *Manufacturers of.*
Ansonia Brass & Copper Co., 19 Cliff, N. Y.... 2
Bridgeport Brass Co., 19 Murray, N. Y.... 2
Davol John & Sons, 100 John, N. Y.... 2
Holmes, Booth & Haydens, 25 Park Place, N. Y.... 2
Plume & Atwood Mfg. Co., 18 Murray, N. Y.... 2
Scoville Mfg. Co., 421 Broome, N. Y.... 2
Waterbury Brass Co., 296 B'way, N. Y.... 2
Brass Butt Hinges.
Tiebout W. & J., 16 & 18 Chambers, N. Y.32
Brass Founders.
McFarland Wm., Trenton, N. J.... 4
Reeves Paul S., Philadelphia....60
Brass Goods.
Waterbury Mfg. Co., Waterbury, Conn... 2
Bridge Builders.
Moseley Iron Bridge & Roof Co., 5 Dey, N. Y.... 4
Union Bridge Co., 18 Broadway, N. Y....56
Bronze, *Manufacturers of.*
Cowles Electric Smelting and Aluminium Co., Cleveland, O.... 6
Buckets, Pump and Elevator.
Clark W. J. & Co., Salem, O....42
Builders' Hardware.
I. S. Spencer's Sons, Guilford, Conn....51
Manhattan Hdw. Co., Reading, Pa....18&56
Nimick & Brittan Mfg. Co., Pittsburgh...32
Whipple Mfg. Co. Cleveland, O....32
Butcher and Shoe Knives. *Manufacturers of.*
Wilson John, Sheffield, England....51
Butts and Hinges.
Chicago Spring Butt Co., Chicago, Ill....57
Sabin Machine Co., Montpelier, Vt....59
Smith & Egge Mfg. Co., Bridgeport....44
Stanley Works, New Britain, Conn....55
Union Mfg. Co., 103 Chambers, N. Y.... 7
Can Makers' Tools and Machines.
Niagara Stamping and Tool Co., Buffalo, N. Y....57
Car Axles.
Roberts A. & P. & Co., 265 S. 4th, Phila... 5
Carpet Stretchers.
Shaffer & Lord, Laporte, Ind.... 9
Car Wheels.
Knoxville Car Wheel Co., Knoxville, Tenn....38
Union Foundry & Pullman Car Wheel Works, Chicago, Ill.... 8
Whitney A. & Sons, Philadelphia.... 5
Carriage Bolts. *Makers of.*
Norwich Bolt Works, Norwich, Conn....12
Townsend, Wilson & Hubbard, Phila....57
Carriage Hardware. *Makers of.*
E. D. Clapp Mfg. Co., Auburn, N. Y....49
Smith H. D. & Co., Plantsville, Conn....12
Woodruff, Miller & Co., Mount Carmel, Ct.15
Cash Registers.
National Cash Register Co., Dayton, O...49
Castings, Iron.
S. Cheney & Son, Manlius, N. Y....36
Devlin Thos. & Co. Philadelphia, Pa.... 7
Haight & Clark, Albany, N. Y....10
Hammer & Co., Branford, Conn....14
Haven J. L. & Co., Cincinnati, O....56
North Brothers Philadelphia, Pa.... 5
Springfield Foundry Co., Springfield, O..42
Syracuse Mall. Iron W'ks, Syracuse, N.Y. 4
Wetherill Robt. & Co. Chester, Pa....59
Castings, Iron and Brass.
I. S. Spencer's Sons, Guilford Conn....51
Castings, Steel.
Eureka Cast Steel Co., Chester, Pa....60
Flagg Stanley G. & Co., Philadelphia....60
Johnson I. G. & Co., Spuyton Duyvil, N. Y 60
Mackintosh, Hemphill & Co., Pittsburgh. 5
Pittsburgh Steel Casting Co., Pittsburgh.60
Standard Steel Casting Co., Thurlow, Pa.. 6
Washington Steel Works, Reading, Pa..36

Chains.
Bradlee & Co., 816 Richmond St., Phila... 5
Covert Mfg. Co., West Troy, N. Y....47
Wm. H. Haskell Co., Pawtucket, R. I.42&57
Cheese Safes.
National Wire & Iron Co., Detroit.... 3
Chemists.
Brainerd A. F., Birmingham Ala....36
Chemicals.
Elmer & Amend, 205 Third av., N. Y....53
Cherry Stoners.
Enterprise Mfg. Co., Philadelphia, Pa....54
Chisels, *Manufacturers of.*
Buck Bros., Millbury, Mass....13
Chucks.
Brown R. H. & Co., New Haven, Conn...58
Smith & Egge Mfg. Co., Bridgeport, Conn.44
Union Mfg. Co., 96 Chambers, N. Y.... 7
Clippers, Horse and Barber's.
Lee Jesse & Son, Philadelphia, Pa....45
Clock Springs, &c.
Dunbar Bros., Bristol, Conn.... 7
Clothes Dryers.
Hill Dryer Co., Worcester, Mass....10
Coal.
Borden & Lovell, 70 West, N. Y.... 4
Pardee A. & Co., 111 Broadway, N. Y....52
Coal Hods.
Wm. Esterbrook, Philadelphia, Pa....36
Coffee and Spice Mills.
Enterprise Mfg. Co., Philadelphia, Pa....54
Lane Bros., Poughkeepsie, N. Y....53
Coke.
Schoonmaker J. M., Pittsburgh....10
Commission Merchants, Iron, Steel, &c.
Howard, Childs & Co., Pittsburgh, Pa... 4
Copper.
New Haven Copper Co, 294 Pearl, N. Y... 2
Cordage.
Elizabethport Steam Cordage Co., 48 South, N. Y....36
Cork Screws.
Howe Bros. & Hulbert, West Winsted, Conn....14
Corrugated Iron.
Cincinnati Corrugating Co., Cincinnati.. 2
Moseley Iron Bridge & Roof Co., 5 Dey, N. Y.... 4
Cotton Presses.
Mecklenburg Iron Works, Charlotte, N.C.48
Coverings, Boiler and Pipe.
Chalmers-Spence Co., 419 Eighth, N. Y... 9
Shields & Brown, Chicago, Ill....42
Crucibles.
Seidel R. B., Philadelphia, Pa....55
Cupolas.
Smith & Sayre Mfg. Co., 245 B'way, N. Y..59
Curry Combs.
Lawrence Curry Comb Co., 309 E. 22d, N. Y....55
Muncie Novelty Co., Muncie, Ind....53
Cutlery, Mfrs' Agents.
The Alford & Berkele Co., 77 Chambers, N. Y....36
Cutlery, *Importers of.*
Clatworthy F. & W., 82 Chambers, N. Y..10
Cutlery, *Manufacturers of.*
Humason & Beckley Mfg. Co., New Britain, Conn....36
Dog Collars.
Medford Fancy Goods Co., 101 Chambers, N. Y....56
Door Bolts.
Ives H. B. & Co., New Haven, Conn....45
Door Checks and Springs.
Shaw Door Check & Spring Co., Boston, Mass....54
Door Hangers, House and Barn.
Cohoes Iron Foundry and Machine Co., Cohoes, N. Y.... 7
Cronk Hanger Co., Elmira N. Y....49
Lane Bros., Poughkeepsie, N. Y.... 3
Stearns, E. C. & Co., Syracuse, N. Y....60
Scranton Mfg. Co., Chicago, Ill....56
The Mack Door Hanger Co., Romeo, Mich.55
Victor Mfg. Co., Newburyport, Mass....21
Door Holders.
Sise, Gibson & Co., 100 Chambers, N. Y..58
Draughtsmen's Sensitive Paper.
McCollin, Thos. H., Philadelphia, Pa....4
Draw Knives.
Wilkinson, A. J. & Co., Boston, Mass....57
Drills.
Elliott Sterling, Newton, Mass....58
Drop Forgings.
The Billings & Spencer Co., Hartford, Conn.... 3
William Rose & Bros., West Phila., Pa.... 7
Williams J. H. & Co., 9 to 15 Richards st., Brooklyn....47
Drop Presses.
Stiles & Parker Press Co., Middletown, Conn....60
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn....51
Williams, White & Co, Moline, Ill....51
Dust Pans.
Steel Edge Dust Pan Co., Boston, Mass...36
Eave Trough Hangers.
Heartley Geo. W., Toledo, O.... 6
Edge Tools, *Makers of.*
Doscher M., 85 Chambers, N. Y....52
White L. & I. J., Buffalo, N. Y....54
Egg Beaters.
Paine, Diehl & Co., Philadelphia, Pa....38
Electric Lighting.
Brush-Swan Electric Light Co., 204 to 210 Elizabeth, N. Y....53
Elevators. *Makers of.*
Morse, Williams & Co., Philadelphia, Pa.59
Stokes & Parrish Machine Co., Phila....58
Emery.
Walpole Emery Mills, South Walpole....32
Engineers.
Gordon, Strobel & Laureau, Phila., Pa... 5
Engines, Gas.
Clerk Gas Engine Co., Philadelphia, Pa..59
Dickson Mfg. Co., Scranton and Wilkesbarre, Pa....38
Schleicher, Schumm & Co., Phila....59
Engines, Steam. *Makers of.*
Cooke & Co., 22 Cortlandt, N. Y.... 9
Dickson Mfg. Co., Scranton and Wilkesbarre, Pa....38
The Cummer Engine Co., Cleveland, O...50
Mecklenburg Iron Works, Charlotte, N.C.48
The Norwalk Iron Works Co., S. Norwalk.58
The Pusey & Jones Co., Wilmington....59
Wetherill Robt. & Co., Chester, Pa....59
Expanding Mandrels.
Cooke & Co. 22 Cortlandt, N. Y.... 9
Expansion Bits.
Brown R. H. & Co., New Haven, Conn...58
Facings, Foundry.
Paxson J. W. & Co., 514 Beech, Phila.... 5
S. Obermayer Foundry Supply Mfg. Co., Cincinnati, O....15
Farriers' Tools.
Heller & Bros., Newark, N. J.... 8
Faucets, *Makers of.*
John Sommer's Son, Newark, N. J....59
McNab & Harlin Mfg. Co., 56 John, N. Y..57
United Brass Co., 79 Fulton, N. Y....45
Faucets, *Self-Measuring, Makers of.*
Enterprise Mfg. Co. of Pa., Phila. & N. Y.54
Feed Cutters.
N. Y. Plow Co., 55 Beekman, N. Y....38
Fence Posts and Drivers.
Over Ewald, Indianapolis, Ind....53
Fences, Wrought Iron.
Champion Iron Fence Co., Kenton, O .. 14
National Wire and Iron Co., Detroit.... 3
Van Dorn Iron Works, Cleveland, O....42
Fencing and Cresting.
Hanika Iron Fence Co., Springfield, O... 2
Files and Rasps.
Barnett G. & H., Philadelphia, Pa.... 8
J. Barton Smith Co., Philadelphia, Pa....50
Madden & Cockayne File Co., Middletown, N. Y....60
Files, *Importers of.*
Montgomery & Co., 105 Fulton, N. Y....10
Moss, F. W. 80 John, N. Y....52
Files, *Manufacturers of.*
Barnett G & H., 41 & 43 Richmond, Phila. 8
The Chelsea File Works, Norwich, Conn.49
Everhart, James M., Scranton, Pa....60
Hennsler, Christian, Philadelphia, Pa.... 8
McCaffrey & Bro., 1732 & 1734 N 4th, Phil. 8
McClellan File Co., E. Saginaw, Mich.... 8
New Am. File Co., Pawtucket, R. I....51
Nicholson File Co., Providence, R. I.... 8
Paul Chas. B., Williamsburg, N. Y.... 8
Union File Co., Baltimore, Md.... 8
Fire Brick, *Makers of.*
Borgner & O'Brien, Philadelphia, Pa....54
Gardner James, Pittsburgh, Pa....54
Kreischer B. & Sons, foot E. Houston, N.Y.54
Newton & Co., Albany, N. Y....54
Ostrander James & Son, Troy, N. Y...54&56
Stevens & Fenton, Birmingham, Ala....54
Union Mining Co., Philadelphia, Pa....54
Valentine M. D. & Bro., Woodbridge....54
Forges, Portable, &c.
Bradley & Co., Syracuse N. Y....60
Buffalo Forge Co., Buffalo, N. Y....14
Bullock T. H., Cleveland, O....14&44
Empire Portable Forge Co., Cohoes, N.Y.56
Fairbanks & Co. 311 Broadway, N. Y....57
Holt Mfg. Co., Cleveland, O....41
Forgings, Iron and Steel.
Hicks & Dickey, Philadelphia, Pa.... 6
Pennsylva. Steel Co., Dauphin Co., Pa....12
Foundry Supplies.
Paxson J. W. & Co., Philadelphia.... 5
S. Obermayer, Foundry Supply Mfg. Co., Cincinnati, O....15

Frame Pulleys.
Palmer Mfg. Co., Troy, N. Y.... 4
Fronts and Rosettes.
National Front Co., Knoxville, Tenn....42
Fruit-Can Tool.
Acme Shear Co., Bridgeport, Conn....43
Fruit Presses.
Globe Mfg. Co., Phila., Pa....48
Furnace Hoists.
Stokes & Parrish Machine Co., Phila., Pa.58
Furnace Lamps.
Taylor & Boggis Foundry Co., Cleveland, Ohio....52
Galvanized Buckets.
Hill James, Providence, R. I....41
Garden Tools.
Dunlap, C. W., 95 Reade, N. Y....44
Glass Cutters.
Andress Thos. J., Philadelphia, Pa....43
Glaziers' Points.
Gilmore J. T. & Son, Painesville, Ohio....56
Gin Ribs, &c.
Lombard Chas. F. Augusta, Ga.... 4
The Brown Cotton Gin Co., New London, Conn....26
Glue.
Russia Cement Co., Gloucester, Mass....43
Gong Bells.
Flagler, Forsyth & Pierson Mfg. Co., N.Y. 3
Grain Measures.
Smith W. J. & Co., Cleveland, Ohio....45
Grain and Seed Separators.
Newark Machine Co., Columbus, O....13
Grinders' and Polishers' Supplies.
Diebel Mfg. Co., Philadelphia, Pa....38
Grinders, Emery.
The K. & W. Mfg. Co., Chillicothe, Ohio..42
Grindstones.
Berea & Huron Stone Co., Cleveland, O....51
Ohio Grindstone Co., Cleveland, O....51
Wood, Walter R., 283 and 285 Front, N.Y.51
Gunpowder, *Makers of.*
Hercules Powder Co., Cleveland, Ohio....57
Laflin & Rand Powder Co., 29 Murray, N.Y. 7
Hack Saws.
Millers Falls Co., 74 Chambers, N. Y....32
Hammers.
Buffalo Hammer Co., Buffalo, N. Y....44
Hammers, Steam.
Bradley & Co., Syracuse, N. Y....60
Hand Force Pumps.
Union Mfg. Co., 103 Chambers, N. Y.... 7
Hardware Comm'n Merchants.
Field Alfred & Co., 93 Chambers, N. Y....10
Graham J. H. & Co., 113 Chambers, N. Y.. 8
Haines Samuel A, 88 Chambers, N. Y....12
Stewart W. J., Jr., 118 Chambers, N. Y...41
Hardware Importers.
Field Alfred & Co., 93 Chambers, N. Y....10
Hardware Manufacturers.
Enterprise Mfg. Co., Philadelphia....54
Humason & Beckley Mfg. Co., New Britain, Conn....36
Shepard Hardware Co., Buffalo, N. Y....35
Stanley Works, New Britain, Conn....55
Union Mfg. Co., 103 Chambers, N. Y.... 7
Hardware Specialties.
Acme Shear Co., Bridgeport, Conn....43
Andress Thos. J., Philadelphia, Pa....43
Bixby & Drullard, Buffalo, N. Y....38
Brown R. H. & Co., New Haven, Conn....58
Globe Mfg. Co., Philadelphia, Pa....48
Howe Bros. & Hulbert, West Winsted, Conn....14
Manhattan Hdw. Co., Reading, Pa....18&56
Rex A. C. & Co., Philadelphia, Pa....32
Shepard Hardware Co., Buffalo, N. Y....35
Underhill, Clinch & Co., 91 Chambers N.Y.10
Hardware, Theatrical.
Martin Samuel, 127 Eighth av., N. Y....15
Hardware Trimmings.
Manhattan Porcelain Works, Corona, L.I. 2
Harness Snaps.
Bassett O. A., Plainville, Conn....41
Covert Mfg. Co., West Troy, N. Y....47
The Meneely Hardware Co., West Troy..48
Hay Knives.
Hiram Holt & Co., East Wilton, Me.... 8
Hinges.
Stanley Works, New Britain, Conn....55
Union Mfg. Co., 103 Chambers, N. Y.... 7
Hoes.
Bruce George W., 1 Platt, N. Y.... 9
Canton Hoe and Tool Co., Canton, Ohio..32
Hog Ringers.
Chambers, Bering & Quinlan Co., Decatur 4
Hoisting Machines.
Box Alfred & Co., 314 Green, Phila....57
Harrington E., Son & Co., Philadelphia..59
Morse, Williams & Co., Philadelphia, Pa.59
Sellers Wm. & Co., Philadelphia, and 79 Liberty st., N. Y....59
Stokes & Parrish Machine Co., Phila., Pa.58
Hooks, Coat and Hat.
Van Wagoner & Williams Co., 82 Beekman, N. Y....60
Hooks (Cotton & Bale).
New York Handle & Mallet Works, 456 E. Houston, N. Y....13
Horse Nails, *Makers of.*
Champion Horse Nail Co., Appleton, Wis.58
Essex Horse Nail Co., Essex, N. Y....10
National Horse Nail Co., Vergennes, Vt..32
Horse Rasps and Files.
Heller & Bro., Newark, N. J.... 8
Horse Shoes, *Makers of.*
Rhode Island Horse Shoe Co., Providence.12
The Burden Iron Co., Troy, N. Y.... 4
Hot-Blast Stoves.
Witherow James P., Pittsburgh, Pa....44
Household Articles.
F. F. Adams Co., Erie, Pa....40
Tucker & Dorsey Mfg. Co., Indianapolis.48
Hydrants, &c.
McLean John, 296 & 298 Monroe, N. Y....12
Hydraulic Jacks.
Dudgeon Richard, 24 Columbia, N. Y....10
Watson & Stillman, 470B Grand, N. Y....59
Ice-Cream Freezers.
White Mountain Freezer Co., Nashua....48
Ice Crushers.
G. F. Warner Mfg. Co., New Haven, Conn.54
Moseman G. H. & Co., 28 Cliff, N. Y....56
Insurance, Boiler.
Hartford Steam Boiler Inspection & Insurance Co....50
Iron, *Manufacturers' Agents.*
Cox Justice, Jr., & Co., 333 Walnut, Phil.. 5
Hicks & Dickey, Philadelphia, Pa.... 6
Hoffman J. W. & Co., 208 S. 4th, Phila.... 5
Levis Henry & Co., Philadelphia, Pa.... 5
Iron, *Manufacturers of.*
Albany & Rensselaer Iron & Steel Co., Troy, N. Y....52
Burden Iron Co., Troy, N. Y.... 4
Calumet Iron & Steel Co., Chicago, Ill.... 6
Keystone Rolling Mill, Ld., Pittsburgh... 4
Kirkpatrick & Co., Pittsburgh, Pa.... 4
Leonard John, 450 West St., N. Y.... 4
Montour Iron & Steel Co., Danville, Pa...52
Phoenix Iron Co., 410 Walnut, Phila.... 5
Plymouth Rolling Mill Co., Conshohocken, Pa.... 5
Riverside Iron Works, Wheeling, W. Va.47
The Passaic Rolling Mill Co., Paterson... 6
The Wilmot & Hobbs Mfg. Co., Bridgeport, Conn....36
Whitney A. R. & Co., 58 Hudson, N. Y.... 4
Wood Alan & Co., Arch, Philadelphia.... 5
Iron and Steel, Swedish.
Lewander & Co., Boston, Mass....53
Iron Brokers.
Etting Edward J., Philadelphia, Pa.... 5
Fox & Drummond, 160 Broadway, N. Y.. 4
Walbaum W. H., Philadelphia, Pa.... 5
Watts Ethelbert & Co., Philadelphia, Pa. 5
Iron Commission Merchants.
Haines Samuel A., 88 Chambers, N. Y....12
Hart Wm. R. & Co., Philadelphia, Pa.... 5
John L. Hogan, Philadelphia, Pa.... 5
Lea J. Tatnall & Co., Philadelphia.... 5
Lundberg Gustaf, Boston, Mass....53
Mohr J. J., 430 Walnut, Philadelphia.... 5
Wister L. & R. & Co. Philadelphia, Pa... 5
Iron Dealers.
Abeel Brothers, 190 South, N. Y.... 4
Abbott Jere & Co., N. Y. and Boston....53
Bonnell, Botsford & Co., Youngstown.... 4
Borden & Lovell, 70 and 71 West, N. Y.... 4
Cooney Daniel F., 88 Washington, N. Y.... 4
Cox Justice, Jr., & Co., Philadelphia.... 5
Egleston Bros. & Co., 160 South, N. Y.... 4
Harrison John J., 558 to 562 Water, N. Y. 4
Hart, Wm. R. & Co., Philadelphia.... 5
Himrod Chas. & Co., Chicago, Ill.... 4
Hoffman J. W. & Co., 208 S. Fourth, Phil. 5
Judson B. F., 457 and 459 Water, N. Y.... 4
Keeley Jerome & Co., Philadelphia, Pa... 5
Lindsay & Parvin, Philadelphia.... 5
Lundberg Gustaf, 38 Kilby, Boston....53
Naylor & Co., 99 John, N. Y....52
Ogden & Wallace, 85 to 91 Elm, N. Y.... 4
Pierson & Co., 24 to 27 West, N. Y.... 4
Wallace Wm. H. & Co., Albany & Washington streets, N. Y.... 4
Wilson E. H. & Co., Philadelphia, Pa.... 5
Whitney A. R. & Co. 58 Hudson N. Y.... 4
Iron Founders.
Bannan, Fras. B. Pottsville, Pa.... 4
Hopson & Chapin Mfg. Co., New London, Conn....48
Iron Pig, *Importers of*
Abbott Jere & Co. (Swedish), New York & Boston....53
Page, Newell & Co., Boston, Mass....53
Williamson James & Co., 63 Wall, N. Y... 4
Iron Planers.
Brettel Geo. E. Rochester, N. Y....59
Lathe & Morse Tool Co., Worcester, Mass.59
Iron Sheet, *Manufacturers of.*
Alan Wood & Co., Philadelphia, Pa....48
Everson, Hammond & Orr, Pittsburgh, Pa 4
Jersey City Galvanizing Co., Jersey City. 4
Lefferts, Marshall & Co., 90 Beekman, N. Y 4
Wood W. D. & Co., Limited, Pittsburgh... 4
Iron, Steel and Nails.
Morris, Wheeler & Co., 14 Cliff, N. Y.... 5
Ironwork, Ornamental.
Champion Iron Fence Co., Kenton, O ...14
Van Dorn Iron Works, Cleveland, O....42

Key Blanks.
Eagle Lock Co., 98 Chambers, N. Y....54
Knife Sharpeners.
Parkin W. H., Cleveland, Ohio.... 4
Lamp Stoves
Alford & Berkele Co., 77 Chambers, N. Y..9
Dangler Vapor Stove and Refining Co., Cleveland, O....47
Lanterns.
Romer & Co., Newark, N. J....44
Lathes.
Harrington, E. & Son, Philadelphia....59
Lawn Mowers.
Blair Mfg. Co., Springfield, Mass....14
Chadborne & Coldwell Mfg. Co., Newburg, N. Y....41
Haines, S. A. & Co., 88 Chambers, N. Y...12
Mast, Foos & Co., Springfield, O....15
Lemon Squeezers.
Ripley Mfg. Co., Unionville, Conn.... 8
Levels.
Richardson C. F., Athol, Mass....38
Locks and Knobs, *Manufacturers of.*
Durrie & McCarty, 97 Chambers, N. Y....32
Eagle Lock Co., 98 Chambers, N. Y....54
Manhattan Hdw. Co., Reading, Pa....56
Miller Lock Co., Philadelphia, Pa.... 9
New England Butt Co., Providence, R. I.54
Nimick & Brittan Mfg. Co., Pittsburgh...32
Perkins Lock Co., Cleveland, O....12
Smith & Egge Mfg. Co., Bridgeport....44
The Charles Parker Co., Meriden....50
Whipple Mfg. Co., Cleveland, O....32
Machinery.
Adt John & Son, New Haven, Conn....57
Atlanta Engineering Co.... 3
Barnes W. F. & John, Rockford, Ill....58
Carter, Allen & Co., Tamaqua, Pa....44
Dickson Mfg. Co., Scranton and Wilkesbarre, Pa....38
Diebel Mfg. Co., Philadelphia, Pa....38
Garvin E. E. & Co., 139 Centre, N. Y....51
Harrington E & Son, Philadelphia....59
Hopson & Chapin Mfg. Co., New London, Conn....48
Mecklenburg Iron Works, Charlotte, N.C.48
Pittsburgh Mfg. Co., Pittsburgh, Pa....57
Sellers Wm. & Co., Philadelphia, and 79 Liberty, N. Y....59
Stokes & Parrish Machine Co., Philadelphia, Pa....58
Stow Flexible Shaft Co., Ld., Phila....59
The Stiles & Parker Press Co., Middletown, Conn....60
Union Foundry & Pullman Car Wheel Works, Chicago, Ill.... 8
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn....51
Wetherill Robert & Co., Chester, Pa....59
Machinists' Tools and Supplies.
Atlanta Rubber Co., Atlanta, Ga.... 3
Blaisdell P. & Co., Worcester, Mass....57
Brettell Geo. E., Rochester, N. Y....59
Harrington E., Son & Co., Philadelphia, Pa....59
King J. M. & Co., Waterford, N. Y.... 8
Lathe & Morse Tool Co., Worcester, Mass.59
Sellers Wm. & Co., Philadelphia, and 79 Liberty, N. Y....59
Starrett, L. S., Athol, Mass....44
Wells Bros. & Co., Greenfield, Mass....43
Mallets.
N. Y. Handle & Mallet Works, 456 E. Houston....13
Penfield Block Co., Lockport, N. Y....14
Measuring Faucets.
Lane Bros., Poughkeepsie, N. Y....53
Measuring Rules.
Stephens & Co., Riverton, Conn....54
Measuring Tapes.
Eddy Geo. M. & Co., 352 Classon av., Brooklyn.... 6
Metal Binding.
Gilmore J. T. & Son, Painesville, O....56
Metals.
Dickerson, Van Dusen & Co., 29 and 31 Cliff, N. Y.... 2
Naylor & Co., 99 John, N. Y....52
Phelps, Dodge & Co., Cliff st., N. Y.... 2
Phosphor Bronze Smelting Co., Limited, 512 Arch, Philadelphia....13
Metallurgists.
Booth, Garrett & Blair, 919 Chant, Phila.. 5
Britton J. Blodgett, 330 Walnut, Phila...52
Mills, Bone Grinding.
Wilson Bros., Easton, Pa....42
Mine Lamps.
Leonard Bros., Scranton.... 7
Mining Engineers.
Brainerd A. F., Birmingham, Ala....36
Molding Machines.
Aiken & Lighton, Birmingham, Ala....54
Molding Sand.
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1 " 26 in. x 24 in. x 7 ft. New Haven.
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1 30-in. Gear Cutter. Newton.
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We have reliable and active local correspondents in every City, Town and Village in the United States and Canada, and can furnish subscribers with late and full written reports regarding the character, habits and ability of their customers.

This Agency is devoted to and managed wholly in the interest of this special branch of business.

The "Blue Book" is published twice a year. Terms of subscription, &c., made known on application to either of our offices.

THE JOHN W. EALY COMPANY,

79 Dearborn St., CHICAGO
51 Chambers St. NEW YORK.

SPECIAL NOTICE,

NOTICE.—M. V. Smith has no longer any connection whatever with the Tyrone Furnace Company; he has no interest in the M. V. Smith's Regenerative Gas Furnace Patents, nor any authority to use them or any improvements made to the same by him. All persons are hereby cautioned against purchasing or contracting with said M. V. Smith for the use of said patents or any part thereof. Licenses to use said Furnaces can be obtained only from the undersigned. TYRONE FURNACE CO.
June 17th, 1885. Tyrone, Pa.

In view of the above notice, published in *The Iron Age* of July 2d, 1885, I have to say that (while the publication is correct) I severed my connection with the Tyrone Company of my own free will and accord, solely with a view of extending my business as metallurgical engineer. My practice hereafter will be to furnish plans, specifications and estimates, as well as to superintend the construction of REGENERATIVE GAS FURNACES, on which there are *no valid patents*, charging a reasonable fee for my work. I have had over 14 years' practical experience in the business, and am prepared to guarantee good work, as well as to protect my clients against infringements.

For further information address

M. V. SMITH,
Altoona, Pa.

MANUFACTURERS' AGENT.

SITUATION WANTED as manufacturers' agent in San Francisco or for Pacific Coast by a middle-aged gentleman; reference and bond furnished if required; in service of present employer over twelve years; will act for one company exclusively or for several, as may be desired; will make trip East within 60 days, and will be glad to correspond with parties who have in contemplation the appointment of an agent for territory referred to.
Address, until October 20th, A. B. WILLIAMS, San Francisco, Cal., after which to Box 111,
Office of *The Iron Age*, 83 Reade St., New York.

WILL EXCHANGE valuable Real Estate for good assorted lots or stocks of Hardware, Iron and Steel. Address
"LOCK BOX 1502,"
Fitchburg, Mass.

Special Notices.

SPECIAL NOTICE.

WE ARE NOW OFFERING

SPECIAL DISCOUNTS

ON

SHAFTING, COUPLINGS, HANGERS AND PULLEYS.

The Edison Shafting Mfg. Co.,

86 to 92 Goerck St., New York.

CATALOGUES AND PRICE LISTS MAILED ON APPLICATION.

LATHES.

We have a lot of

26-Inch Lathes,

heavy, first-class tools, which we will sell at

Very Low Prices,

as we wish to reduce stock.

We make Lathes of every swing from 22 inch to 72 inch, any length of bed; pulley lathes and axle lathes.

Write to us for prices.

GEO. A. OHL & CO.,
Newark, N. J.

FOR SALE.

29 in. x 16 ft. Engine Lathe. G. M. Fifield.
13 in. x 5 ft. Engine Lathe. Bement.
60 in. Pulley Turning Lathe. New.
90 in. Pulley Turning Lathe. Nearly new.
50 in. Boring Mill. Phila. Hyd. Works.
36 in. x 10 ft. Planer. N. Y. Steam Eng. Co.
10 in. x 5 ft. Blaisdell Speed Lathe.
15 in. x 6 ft Back-geared Foot Lathe.
18 in. Column Drill Press.
3-Spindle Nut Tapper.
A. G. BROOKS, 261 N. 3d St., Phila.

Business For Sale.

A Sheet-Metal and Tinware manufacturing business. Specialties with good profits on patented articles. $10,000 to $12,000 required. Established 25 years. Factory fully equipped and situated in a central N. E. town. Full particulars on application. Address "I. X."
Office of *The Iron Age*, 83 Reade St., New York.

HOISTING ENGINES.

New 10 H.-P. worm-geared Hoisting Engines; Steam Cylinder 6 in. bore, 8 in. stroke; geared 16 to 1; Drum 20 in. diameter, 18 in. long. Improved Cone Friction for Hoisting and Lowering. Also 6 in. x 6 in. Williamson Spur-Geared Hoister, with Clutch and Link Motion. Drum 8 in. x 16 in.
A. G. BROOKS,
261 N. Third Street, Phila.

BOILER TUBES and BOILER RIVETS.

A Traveling Salesman selling Boiler Plate and Tank Iron wishes to make arrangements with manufacturers of Rivets and Tubes, either on salary or commission. Address
"RIVETS AND TUBES,"
Office of *The Iron Age*, 83 Reade St., New York.

A File manufacturer having an established trade, and fully equipped to make goods cheap, desires to negotiate with some large File buyer who would be willing to buy at special prices not less than $20,000 net per annum.
Address "FILES,"
Office of *The Iron Age*, 220 S. Fourth St., Philadelphia.

Wanted.

A contract by year

FOR GALVANIZING

Wrought Iron, Gray or Malleable Iron Castings.

JAMES HILL,
Westfield, Fuller & Sprague Sts, Providence, R. I.

WANTED.

An experienced Hardware man to travel in the South. Trade established. Middle-aged man preferred. Give reference and salary expected.
Address "S. S.,"
Office of *The Iron Age*, 83 Reade St., New York.

Wanted.

A capable, energetic and ambitious man to sell goods in and about New York City for a manufacturer of Builders' Hardware.
Address "BUILDERS' HARDWARE,"
Office of *The Iron Age*, 83 Reade St., New York.

TO MAKE room for larger tool, will sell cheap for cash, a Planer, 42 in. x 42 in. x 12 ft.; in good order. Address P. O. BOX 2085,
Bridgeport, Conn.

NOTICE.

Large Buyers of Shafting are requested to send specification for special prices.
MERWIN McKAIG,
Cumberland, Md.

Special Notices.

Second-Hand MACHINERY.

1 Engine Lathe, 92-in. swing, 20-ft. bed, with Back Face Plate for Pit work.
1 7-ft. swing Engine Lathe, 10 ft. bet. centers.
1 Engine Lathe, 7-ft. swing, 20 ft. bet. centers.
1 " 48 in. swing, 24 ft. bed. Cheap.
1 " 33 " 10½ " Pond.
1 " 28 " 16 " Fifield.
1 " 27 " 18 " Heavy.
1 " 27 " 14 " Heavy.
1 " 21 " 12 "
1 " 19 " 7 " Whitcomb.
1 " 18 " 8 " Lamson.
1 " 18 " 7 " Gould.
1 " 12 " 5 " Gould.
1 Lathe, 18 in. x 7 ft Old style. Very cheap.
1 Foot Lathe, 10 in. swing.
1 Iron Planer, 42 x 42 in. x 12 ft. New Haven.
1 " 32 x 32 in. x 9 ft. New Haven.
1 " 30 x 30 in. x 8 ft. Bigelow.
1 " 24 x 18 in. x 4 ft. Freeland.
1 " 24 x 24 in. x 5 ft. New Haven.
1 " 20 x 20 in. x 4 ft. Bishop.
1 " 15½ x 9 in x 4 ft.
1 Lincoln Milling Machine.
1 28-in. D ill, wheel feed, back geared. Gould.
1 36-in. " Old style. Cheap.
2 15-in. Drills, wheel feed. New.
4 Blacksmith Post Drills.
1 2-Spindle Drill. Fine. New.
1 Shaping Machine, 12-in. stroke. Very heavy.
1 12-in. swing, 4-ft. bed, Hand Lathe.
2 10-in. " Hand Lathes.
1 Cutter Grinder.
1 Upright Boring Mill, 50-in. swing x 24 in. high.
1 Pulley Hub Drilling and Tapping Machine. New.
1 Power Geared Shear, 21-in throat. Cuts 1 in.
1 10-in. Alligator Shears. Heavy.
1 Alligator Shears, 6-in. Jaw.
1 Hand Bar-Iron Shears.
1 No. 42 Bliss Power Press.
1 No. 2 Fowler Press, wheel 36 x 4.
2 No. 2 Otis Presses. Wheel 24 x 2½ in. New.
1 No. 4 Merriman Power Press New.
1 Heavy Screw Press, 3-in. diam. Screw.
1 Ferracute Screw Press.
1 Small Screw Press.
10 Foot Presses, various sizes.
1 Power Geared Punch, 21-in. throat. Punch hole 1 in. x 1 in.
1 Hand Punch.
1 Drop Hammer and Lifter. 325-lb. Hammer.
1 Drop Press, 7-ft. guides. 11-in. space, 120-lb.
1 set 6½-ft. Power Bending Rolls. Very cheap.
1 Hydraulic Wheel Press.
1 Double Head Bolt Cutter.
1 Durrell 7-Spindle Upright Nut Tapper.
1 100-lb. Jenkins' Patent Vulcan Power Hammer.
1 40-lb. Bradley Hammer.
1 60-lb. " "
1 Shaw & Justice 50-lb. Dead Stroke Hammer.
1 Alden Stone Crusher, No. 6.
1 1-ton Harrington Chain Hoist. 24-ft. lift.

The above are all in first-class condition, and will be sold at very low figures.
Have also a lot of new machinery for sale at bottom prices.
This list is changed every week, and if it does not contain what you want, write us, stating particulars. Machinery bought, exchanged, or sold on commission.

Badger & Stetson,
49 Dey St., New York City.

For Sale.

General Hardware, Stove and Tin business in a Southwestern town. Trade mostly with stock men. Business large and profitable. Present stock about $15,000. May be reduced to $10,000 by early sales of fence wire. Only hardware store in the place. No hard stock. Fullest investigation offered. Stone building sold or rented with the business if desired. A splendid opportunity for a man with some capital. No questions will be answered or negotiations opened except parties of standing or on reference to such. Address,
"HOWARD,"
Office of *The Iron Age*, 83 Reade St., New York.

For Sale.

Stock of Hardware, Stoves, Tinware, &c., at Elkhart, Ind.—live town, 10,000; centrally located; inventory about $6000. Best crops here this year of anywhere in the country. Engaging in manufacturing the reason for selling. Splendid opening for live man. Address "HARDWARE,"
Elkhart, Ind.
Lock Box 1202.

Portable Engines for Sale Cheap.

One 6-H.-P. Portable, Best's make, for $250.
One " " Kriebill 300.
One 10 H.-P. " Wood, Taber & Morse 375.
One 6-H-P. " " 275.
All in good order, some good as new.
One 1-H.-P. Engine and Boiler. New. 140.
One 15-H.-P. Engine & Boiler, stationary. New 475.
One Victor Clover Hulier. Good order. 210
Call on or address EZRA F. LANDIS,
Lancaster, Pa.

FOR SALE OR LEASE.

Whole or part interest in Omaha Iron Works, at Omaha, Neb.: new brick buildings; new machinery; 1½ acres ground; side tracks on two railroads; only machine shop and foundry in Omaha (population 66,000); largest and best equipped in Nebraska (population 800,000). Will sell whole or a part interest at great sacrifice or will lease to a responsible party. Only reason for disposing of the property is that owner is not a mechanic and does not understand the business.
Address P. O. Box 62, Omaha, Neb.

For Sale.

Manufacturing property, with power, at Shelton, Birmingham, Conn., suitable for heavy or light work requiring not over 50 horse-power. Good wheel and driving pulley. Large chimney and extensive buildings. Very liberal inducments if sold at once. For further information address or call upon CHAS. B. BOOTHE,
Birmingham, Conn.

For Sale.

1½ x 17 and 1¾ x 17 good Hoops in pieces two to six feet long; in carloads, f. o. b mill, Duncansville, Pa. A. R. WHITNEY & CO.,
P. O. Box 33, New York.

Water-Power.

We have a good Water-Power, and can make twice as many goods as we are now making. We have a good Machine Shop well stocked with Tools, good Trip Hammer and Grinding Room, and the best of help. Our works are only 17 miles from Boston, on the Providence Railroad. We deliver goods in Boston and New York free of charge. Address "BOX 88," Sharon, Mass.

For Rent

AT BRIDGEPORT, CONN.,

A brick factory, 55 x 162 feet, with a high basement and two stories; with 40-horse steam-power.
Address P. O. BOX 5,
Bridgeport, Conn.

TO Iron Manufacturers or Coal Operators in want of Manager for company store; can furnish half capital if desired, or will work on salary; best references.
Address "STORE," Box 165,
Office of *The Iron Age*, 83 Reade st., New York.

Special Notices.

Engines and Boilers.

NEW AND SECOND-HAND.

The following new Slide-Valve Engines guaranteed complete and first class:

One 14 x 16. One 8 x 10.
One 12 x 16. One 11 x 16,
One 18 x 24. One 10 x 15.
One 14 x 20. One 10 x 12.

Second-hand, guaranteed in good condition:
One Corliss Cut-off. 16 x 42.
" " " 12 x 30.
" Wright " 22 x 42.
One Adjustable Cut-off. 16 x 48.
" " " 10 x 30.
One Safety Power Vertical Engine, 6 H.-P.
One Corliss Beam Condensing Engine, 30 x 72.

Large stock assorted sizes new and latest improved Engines and Boilers. Come and examine our stock. Plans, estimates and specifications furnished for mills and factories, guaranteeing best results; steam engine indication; cards demonstrated for economy, &c. Send for circular.
NEWELL UNIVERSAL MILL CO.,
10 Barclay Street, New York.

BOOKS.

LAMBERSON'S

HARDWARE PRICE BOOK,

Pocket Edition, each $4.00.

DISCOUNT BOOK,

Just out. Cloth, $2.50. Leather, $3.00.

Send for Descriptive Circulars.

Sent, post-paid, to any address, on receipt of price by B. LAMBERSON, Portland Oregon; David Williams, 83 Reade St., N. Y.; A. F. Shapleigh & Cantwell Hdw. Co., St. Louis, Mo., or William Blair & Co., Chicago, Ill.

FOR SALE.

THE CUTLERY MANUFACTORY AND MACHINERY,

formerly known as the White & Sanson Cutlery Works, at Hedge and Oxford Streets, Frankford, Philadelphia, with Patent No. 108,740, for improvement in Handles of Table Knives. Full particulars upon application to

WILLIAM L. DuBOIS, Treasurer of the Philadelphia Trust, Safe Deposit and Insurance Company, 413, 415 and 417 Chestnut St., Philadelphia.

For Sale.

New first-class Machine Tools at very low prices, combining all the latest and best improvements:
Engine Lathes with 6 and 8 foot beds, 16-inch swing.
18-inch swing, with 8, 10 and 12 foot beds.
25-inch swing, with 12½-foot beds.
26, 27 and 28 inch swing, with 12½-foot beds.
For description, cuts and prices, address.
JOS. B. REED,
Cairo, Ill., U. S. A.

Horse Shoe Nail Factory For Sale.

The St. Lawrence Horse Shoe Nail Factory, consisting of a three-story building connected with a good and exclusive water-power, situated at Brashers Falls, St Lawrence County, N. Y., on the line of the Ogdensburg and Lake Champlain Railroad, is offered for sale at a bargain, together with complete machinery for the manufacture of Horse Nails, consisting of two of the latest Improved Dodge machines, a Woodruff Pointer and all the latest improved shafting and other machinery necessary for the complete equipment of the business. Owing to litigation entirely disconnected with the business, this property has fallen into the hands of a lady who desires to dispose of it at once. For terms and particulars address or apply to
O'BRIEN, EMERSON & WARD,
Watertown, N. Y.

Business For Sale.

A manufactory of carriages and sleighs for the trade, with an established reputation. A capital of $5000 to $10,000 needed, although $30,000 can be profitably used. Full particulars on application.
Address "C,"
Office of *The Iron Age*, 83 Reade St., New York.

Investigate This.

Half or the whole interest in an old and well-established Machine Store in Philadelphia, doing a business of $67,000 per year; will sell half interest for $7000 to the right man and take parner Real Estate, or the whole at a great bargain; satisfactory reasons for selling will be given, and a rigid investigation invited; one of the best Banks in Philadelphia is the reference. Address, by letter only, "E.,"
Office of *The Iron Age*, 220 S. 4th St., Philadelphia.

Interesting to Manufacturers.

Manufacturers having good facilities and desiring to make a Roller Skate operating upon an entirely new principle, which in point of merit experts pronounce to be far ahead of any in their line, will please address
S. M. BROWN,
No. 2725 S. State St., Chicago, Ill.

Cotton Gin Ribs.

HARDWARE MERCHANTS

and others furnished with materials of all kinds for making and repairing COTTON GINS, RIBS and SAWS for repairing ALL makes of gins. Send for Price List. Address THE BROWN COTTON GIN CO., Manufacturers of Cotton Gins, Feeders and Condensers, New London, Conn.

SALESMAN desires engagement with first-class manufacturer; thoroughly understands all branches of the Rolled Iron and Steel business; is well and favorably known to the trade West and South; would travel or take charge of branch house or local agency in Western city. Address "IRON SALESMAN," Box 45,
Office of *The Iron Age*, 83 Reade St., New York.

Special Notices.

AXLE MACHINERY.

A complete lot of modern Machinery for manufacturing Carriage Axles.
Tools have been in use about three years.
Will sell one Machine, or the lot, to suit the customer; immediate delivery.

LIST:

2 Kingsley Helve Hammers.
1 Bradley Helve Hammer, 100 lbs.
6 17 in. x 6½ ft. Putnam Engine Lathes.
2 Pratt & Whitney Back Geared, Nut Tapping and Facing Machines (or No. 3 Screw Machines).
2 Pratt & Whitney Axle Threading Machines, with Turret Head.
1 Wilder Bar Iron Cutter, capacity, 2½ Square Iron.
1 Sturtevant No. 4 Steel Pressure Blower and Counter-shaft.
2 Reaming Machines, quick acting, excellent tools.
2 Tumblers, 4 ft x 2 ft.
1 Revolving Forge.
3 Cast Iron Forges.
1 Platform Scale.

A large and valuable lot of small tools, fitted to above Machines, and adapted to the business.
We have a full line of new machinery, and are prepared to make low quotations. We are also agent for the following firms. Write full particulars of what is wanted.

NEW YORK AGENT FOR

Brown & Sharpe Manufacturing Co.
P. Blaisdell & Co.
Powell Machine Tool Co.
Bradley's Cushion Hammer.
National Mchy. Co., Bolt and Nut Mchy.
Hilles & Jones, Boiler Tools.
Slates' Sensitive Drills
Elliott's Drills. Gage Brass Lathes.

E. P. BULLARD, 14 Dey St., N. Y.

For Sale.

Will sell cheap for cash and time payments, or will exchange for real estate or lumber, any part of the following machinery, subject to inspection befor purchase

1 Train of Lauth's 24 in. 3-high Rolls.
1 Train of 2-high 22-in. Plate and Sheet Rolls and Duplicate Rolls.
1 Train of 20 in. Soft Rolls and Duplicate Rolls.
1 Compound 18-inch Muck Train and Duplicate Rolls
1 Large Engine, 32 x 42, horizontal, 20-ton fly, doubly braced wheel, 12 in. face
1 Large Rotary Squeezer for 150-lb Ball.
1 Large Roll Turning Lathe for Turning up Rolls.
1 Large Pump.
2 Large Cranes for Handling Housings and Rolls.
1 Plate Shear to shear as high as ¾-in Plates.
1 Sheet Shear.
1 Shaping Shear.
1 Muck Shear.
1 Scrap Shear.
1 Scrap Shear and Engine.
1 Large Sturtevant Blower and Pipe.
Furnace Plates for 4 Charcoal Fires, including Valve &c.
1 Battery of 3 extra flange Fire-box Boilers; size 26 ft. by 48 in; 2-flue, 16 in., to operate together or separate; with all connections.
1 Large Boiler, fire-box metal, 28 ft. by 42 in. or 44 in.
4 Small Boilers, 22 ft. by 42 in.
1 Track Scale, Wagon Scale, Mill Scales, Tools, Tramways, Buggies, Patterns, &c.

Address
PLATE & BAR MILL CO.,
Room 28, 187 and 189 Dearborn St., Chicago, Ill.

For Sale.

Second-hand

DROPS and LIFTERS.

BEECHER & PECK,
Lock Box 122, New Haven, Conn.

FOR SALE.

Baker Blowers, Nos. 2, 4, 5 and 5½; Root do., Nos. ¾, 1½, 1, 2, 4, 5 and 7; Sturtevant do., Nos. 1, 3, 4, 6 and 7; do. Exhausters, Nos. 2, 36, 38 and 39; closing out Sugar Machinery; 4-Roll Campbell Printing Press, prints 40 in. x 56 in.; 50 H. P. Horizontal Boiler. Purchasers of all kinds of Machinery and Supplies will find it to their advantage to do their purchasing through
C. R. BIGELOW, M. E., 45 Dey St., New York.

For Sale.

Contents of Adriondiecks Steel Works, Jersey City, in lots to suit purchasers, comprising Steam Engines, Boilers, Shears, Steam Hammers, Trains of Rolls and everything necessary for working a first-class Rolling Mill.
Apply on the premises or to
J. LEONARD,
445 West st., New York City.

MEYER, KINGSLAND & CO.,

Wholesale Auctioneers,

No. 10 Warren St., New York.

Regular sales of Hardware, Cutlery, &c. Sales cashed promptly. Consignments of goods solicited.

59 DUANE ST.

We have rented the above-named building in New York City for a salesroom and branch factory, and shall be glad to see all our old friends and patrons, as well as any in need of anything in our line. Dies a specialty.
THE STILES & PARKER PRESS CO.,
Middletown, Conn.

Vulcan Works Baltimore, Md.

This old-established Foundry and Machine Shop for sale or lease. Has a complete equipment in all departments. Tools for sale. Send for catalogue. Address as above.

E. BISSELL & CO.,

Wholesale

HARDWARE AUCTIONEERS,

83 Chambers and 65 Reade Sts., New York

Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

NOTICE.—M. V. Smith has no longer any connection whatever with the Tyrone Furnace Company; he has no interest in the M. V. Smith's Regenerative Gas Furnace Patents, nor any authority to use them or any improvements made to the same by him. All persons are hereby cautioned against purchasing or contracting with said M. V. Smith for the use of said patents or any part thereof. Licenses to use said Furnaces can be obtained only from the undersigned.
TYRONE FURNACE CO.,
June 17th, 1885. Tyrone, Pa.

Trade Report.

British Iron and Metal Markets.

[*Special Cable Dispatch to The Iron Age.*]

LONDON, WEDNESDAY, September 2, 1885.

Scotch Pig.—The market is a little steadier. We quote makers' brands as follows:

Coltness, alongside, Glasgow			48/6
Langloan,	"	"	47/6
Gartsherrie,	"	"	46/6
Summerlee,	"	"	46/6
Carnbroe,	"	"	46/
Glengarnock,	"	Ardrossan	45/6
Eglinton,	"	"	41/
Dalmellington,	"	"	42/
Shotts,	"	at Leith	47/

Lighterage from Ardrossan to Glasgow is 1/ ℔ ton.

Cleveland Pig—Market steadier. We continue quotations, f.o.b. shipping ports:

Middlesboro, No. 1 Foundry			36/6
"	No. 2	"	35/
"	No. 3	"	32/6

Bessemer Pig—The market is a little steadier. W. C. Hematites are quoted 43/ for mixed lots, Nos. 1, 2 and 3, equal portions, f.o.b. shipping ports.

Manufactured Iron.—The market is a little steadier. We quote at works:

		£	s.	d.	£	s.	d.
Staff. Ord.	Marked Bars	7	10	0 @			
"	Medium "	6	0	0 @	6	10	0
"	Common "	5	10	0 @	5	15	0
Hoops, 20 W. G. and over.							
"	Common Best	6	15	0 @			
"	Medium	6	5	0 @	6	10	0
"	Common	6	0	0 @	6	7	6
Sheets, 20 W. G. and under.							
"	Ordinary Best	7	15	0 @	8	5	0
"	Common	7	5	0 @	7	15	0

Steel Rails—Are unchanged. We quote £4. 15/ @ £4. 17/6, f.o.b. shipping ports.

Old Rails—Are a little steadier. We quote Old D. H's, c.i.f. New York, £3 @ £3. 2/6.

Scrap.—The market is a little firmer. We quote Heavy Wrought £2. 10/ @ £2. 15/, c.i.f. New York.

Copper.—The market is steady. We quote Best Selected, £47 @ £48, and Chili Bars, £42. 5/ @ £42. 10/.

Tin.—The market is weaker. Straits Tin, spot, is quoted £90. 10 @ £91, and futures £90 @ £90. 10/.

Tin Plates—Are unchanged. We quote:

Tin Plates, 10x14, 1st qual.	Charcoal		19/6 @ 21/6
"	2d	"	18/6 @ 19/
"	1st	" Coke	17/6 @ 18/
"	2d	"	14/ @ 14/6

Spelter.—The market is a little firmer. We quote Ordinary at shipping ports, £14. 7/6.

Lead—Market is lower. We quote Common English Pig, £12.

Freights.—Steam from Glasgow to New York, 1/ @ 2/.

Financial.

Office of *The Iron Age*,
WEDNESDAY EVENING, September 2, 1885.

In scanning the business horizon good signs predominate, despite some serious drawbacks. Look which way we may among our mail exchanges, the general tenor of advices is cheerful, although misgivings are occasionally expressed respecting the permanency of the improvement already recorded. The renewed cutting of east-bound freights by rail and the almost desperate demoralization of the coal trade are disturbing factors. Moreover, even since the recent decline of 10¢ ℔ bushel on wheat, there is no assurance of an adequate export demand for this leading cereal. In addition, the uncertainties of Congressional action touching the coinage question operate as a dead weight in various departments of enterprise. In the face of these adverse circumstances, as before remarked, business in all parts of the country feels the impetus of the enormous maturing crops, on account of which sales of merchandise are already making in New York, as in the West, and bills of exchange on London are being drawn against them. It is confidently expected, too, that lower prices for breadstuffs must eventually augment the exports of grain. On the New York Produce Exchange just now the market is mainly governed by the weight of the visible supply, which is 23,514,513 bushels more than it was at same time one year ago, and 20,265,661 bushels more than two years ago. According to the Chicago statement, the visible supply embraces 43,136,974 bushels of wheat, 5,474,479 bushels of corn and 3,863,526 bushels of oats.

The Stock Exchange market during the week was irregular and inclined to flag, partly in consequence of a disposition to realize. A cut in east-bound rates also had a depressing effect. The refusal of the Lackawanna to reduce their proportion of coal under the allotment unfavorably influenced the coal shares. On Saturday there was a drop at the close on a reported reduction in the quarterly dividend on Chicago and Northwestern preferred. Tuesday and Wednesday were without special feature.

United States bonds closed as follows:

	Bid.	Asked.
U. S. 2 per cents	106	—
U. S. 4½s, 1891, coupon	113¾	113¾
U. S. 4s, 1907, coupon	122¾	123
U. S. Currency 6s, 1895	127¾	—
U. S. Currency 6s, 1896	129¾	—
U. S. Currency 6s, 1897	131¾	—
U. S Currency 6s, 1898	133¾	—
U. S. Currency 6s, 1899	135¾	—

The public debt statement for August shows a decrease of $2,879,052.

The weekly bank statement shows a further decrease of $1,431,225 in surplus reserve, and an increase of $2,557,800 in loans, and considered in connection with a less active stock market indicates a better demand for mercantile purposes.

Respecting the general commercial outlook, we learn from Chicago that "there is quite a large buying movement of staple goods by leading houses, based on advices that the demand from country towns will be larger than last year." In Philadelphia, after careful inquiry, "it is the hope and belief that the improvement at present noted will be continuous unless confidence be shaken by unwise tariff legislation." In Pittsburgh reporters who have circulated through all avenues of business learn that the trade for August is "quite equal to that of the same month last year." In Boston, according to the *Bulletin*, "all the elements are now at hand for a short cut back to prosperity." In St. Louis the amount of business done in August is "largely in excess of that of the corresponding month last year," and, according to a well-known banker, "the prospect for a heavy fall trade is as good as any reasonable man could wish." In Nashville and Charleston the markets grow stronger each day. After comparing views from all quarters, it remains to be said that, taking the country as a whole, while the aggregate of business done in August slightly exceeds that of August, 1884, the lower range of prices now current indicates a reduced margin of profits, and, further, that until there is a larger absorption of products through legitimate demand the basis of confidence will not be fully established.

In the general market the dry-goods jobbers report the activity recently noticed to be fully maintained; the tone of the market is strong, with many classes of goods sold to arrive. Cotton is only in fair demand; sales moderate. Wool is moderately active and strong. Sugar firm. Tobacco quiet, but firm. In provisions there is little doing; exports quiet.

The returns from leading clearing houses in the United States are not as encouraging as those for the previous week, although the improvement noted in the cities outside of New York is good. One-half of the cities report increases ranging from 83.6 % at Memphis down to less than 1 %. On the other hand, none of the decreases are of moment, the largest being 20.7 % at New Haven, and 17.9 % at Portland. In New York there is a decrease of 2½ %, owing to the lessened activity in stocks. Foreign exchange is heavy, owing to the pressure of commercial bills drawn against cotton shipment, actual and prospective, and the light demand. The nominal rates are $4.84 for long and $4.86 for short. Money is 1 @ 1½ %. We quote 60 to 90 days' indorsed bills receivable at 3 @ 3½; four months' acceptances at 3½ @ 4½. Trade dollars, so bullion dealers report, have this week declined in value from 87¢ to 84¢.

Comptroller Loew opened bids for additional water stock of the City of New York to the amount of $1,000,000, bearing 3 per cent. interest semi-annually, the principal payable on October 1, 1904, and awarded $700,000 of the stock to Blake Brothers & Co. at $101.689, and the balance in $100,000 lots to Daniel A. Moran at $101.69, $101.76 and $101.89.

According to the Custom House reports, the imports of specie and bullion at this port during the past week amounted to $114,940, and the exports for the same time $256,120. The total imports of specie since January 1 amount to $7,752,944, and the exports for the same time $18,316,710, as against $12,698,256 and $18,316,710 respectively for the corresponding period in 1884. The imports for the past week at the port of New York were $1,818,665 below the valuation of the previous week, the total being $7,133,806, of which $2,285,146 represents dry goods, as compared with $8,382,119 for the corresponding week last year. The total since January 1 is $256,680,893; for same time in 1884, $295,841,161. The exports of merchandise were $40,000 above those of the previous week, the total being $6,147,141, and since January 1 the aggregate valuation is $221,527,754. Included in the items are 595,075 bushels of wheat, 237,455 bushels of corn, 4306 bales of cotton, 5,348,252 gallons of petroleum, 3,474,167 pounds of cut meats and 3,560,103 pounds of lard.

The total values of imports and exports from the Dominion of Canada for the last month are respectively $9,208,220 and $10,035,165. The amount of duty collected was $1,733,167.

Nothing is known at the Pennsylvania Railroad office of orders having been given for the completion of the South Pennsylvania Railroad. The road, an official said, had not yet passed into the company's hands, but it was understood that the contractors had not been ordered to stop work. The new West Shore bond certificates have been admitted to dealings by the New York Stock Exchange.

The chief of the Bureau of Statistics, in his first monthly statement for the current fiscal year, reports that the total values of the exports of merchandise from the United States during the 12 months ended July 31, 1885, were $733,378,429, and during the preceding 12 months $742,242,017, a decrease of $8,863,588. The imports of merchandise during the 12 months ended July 31, 1885, amounted to $571,439,215, and during the 12 months ended July 31, 1884, $665,842,287, a decrease of $94,403,072.

Reed, Bowen & Co., contractors for public works, London, are declared bankrupt, in consequence of losses sustained in Brazil railway contracts. The liabilities of the firm are £314,316, while their assets are £22,067.

Of the many views in opposition to the Bland dollar expressed by our leading bankers and merchants, perhaps none are entitled to more weight than those of George G. Williams, president of the Chemical Bank, who says:

In reply to your request for my views on the continued coinage of the standard silver dollar, I wish to say that it appears to me the cloud in the distance threatens a financial tornado which will destroy the prosperity now dawning upon us. If continued, this coinage must result in the expulsion of all our gold and the placing of this great commercial nation on a level with the countries of the East, and at a disadvantage with the best commercial nations of the world. It must give us an unstable currency, unfixing all values, and bulky and unacceptable. The manner of the change from the gold basis to the silver basis is the most dangerous of all. Gold will go to a premium; it will be hoarded; bank loans will be called for to pay bank deposits which depositors will call for in gold; failures and depreciation and a collapse of credit will follow—possibly a dreaded panic—as the quantity of silver in circulation is insufficient as a basis to supply the vacuum made by the withdrawal of gold. Tight money must result for some years until the silver coined is sufficient in amount to replace the gold withdrawn. We should have but one legal tender, and that should be gold, but I would not object to the coinage of all the silver that can be used, provided it is made to be of value equal to the gold, and I would favor the funding of some part of the legal-tender notes and the issue of $1 and $2 silver notes based on silver dollars of equal intrinsic value with the gold dollar. These, in brief, are some of my views, but the immediate suspension of the standard silver dollar coinage is a matter of the utmost consequence.

Charles Jenkins, president of the East River National Bank, says: "I have had many conversations with business men on the coinage of the silver dollar of 412½ grains, and I have not yet found one who did not condemn the measure."

Metal Market.

Copper.—The sale of Lake Copper to manufacturers has at length come off, amounting to 8,000,000 to 10,000,000 lb., supposed to have been at 11¢, to be delivered this month and the three following ones. Since then the market is very firm, with a better consumptive demand, at 11¼¢ @ 11½¢, Lake Superior; Electrolytic, 11¢; prime Arizona, 10¾¢, and Baltimore and Orford, 10¼¢ @ 10½¢. There is a better feeling in the metal trade and business circles generally; not that a "boom" were expected in October—we have hardly got the elements for one—but a good fall trade. Meanwhile the London market for Best Selected has been steady at £48. 10/, and Chili Bars have ranged as follows: August 27, £42. 12/6; August 28 and 29, £42. 10/; August 31, £42. 12/6; September 1 and this morning, £42. 5/. The London *Mining Journal* of August 22 writes about Old Copper as follows: "There is a large quantity of Old Copper imported from abroad as well as that accumulated among the home consumers, and which the smelters remanufacture. There is little or no waste in resmelting Old Copper, like there is in other metals, and it is evident that since there are several hundreds, and even thousands, of tons of this old stuff purchased every year, it must be reckoned as one branch of supply. Of course no account could very well be taken of it in statistics; nevertheless, the fact exists, and at the present time there are said to be large quantities ready for sale and waiting merely for a market. While it is impossible to tell how large stocks may have accumulated of this old metal, still one thing is certain, and that is the supply is very heavy and increasing. As Copper becomes more and more consumed, so the supply of old stuff must necessarily increase." For manufactures in this market dealers ask 16¢ for New Sheathing Copper, 17¢ @ 17½¢ for Braziers, 18¢ for Bolts, 18¢ for Bottoms. American Yellow Metal Sheathing and Nails, 11½¢; Rod, 15¢, and English, in bond, 13¢. We are cabled from London this afternoon that the market remains steady.

Tin.—London being quiet and easy, our own market has been equally so at 21¢ for large lines Straits, London meanwhile coming £90. 5/, spot, and £90, three months. We receive a cablegram from London this afternoon stating that the market is weaker. *Plates*—Have been steady, but very quiet, at the following quotations for large lines, ordinary brands, ℔ box: Charcoal Bright, $4.87½ @ $5.50; do. Ternes, $4.50 @ $4.75, and Coke Tin, $4.50 @ $4.62½. The Liverpool market has been firm, Charcoal at 16/ @ 17/6, and Coke at 14/3 @ 14/6. From London we are told that the market is somewhat weaker.

Lead.—There were sold during the week 500 tons of Common Domestic at 4¼¢, which is the closing figure, and 200 tons Corroding at $4.27½, while in St. Louis there is great firmness, 400 tons selling at $4.15, which is equal to $4.38 here. In London Soft Spanish declined to £11. 10/. Manufactures are quoted as follows: Lead Pipe, 5¾¢ ℔ lb; Sheet Lead, 6¼¢; Tin-Lined Lead Pipe, 15¢, and Block-Tin Pipe, 40¢, allowing in trade for Old Lead delivered in New York, 3¢ ℔ lb. Shot, Drop, 6¢; Buck, 7¢; Chilled, 7¢. Shot in 5-lb bags, 1¢ ℔ lb extra. We are cabled from London this afternoon that the market is lower. English Pig quoted £12.

Spelter and Zinc.—The position of Spelter has gone on improving, both in Europe and here, since nearly all the English makers joined the Continental makers in the agreement binding themselves, under a penalty of £13 ℔ ton, not to increase their production during the next three and a half years. Excluded from the agreement are several Belgian firms, with a production of about 6000 tons, and the small production of Austria and Poland, amounting to some 6500 tons. Negotiations which promise to have a succesful result are in progress between the Sheet Zinc producers with a view to regulating the sale of that article. Foreign cannot now be had in the New York market under 4⅞¢, and there are chances that it may soon be higher than this. Meanwhile Common Domestic has been selling in our market to a moderate extent at 4⅜¢ @ 4⅝¢, closing very firm within this range. We find the London market did not vary from £14. 7/6 for Silesian during the week. We quote Bertha Refined, 7¼¢ @ 8¢. *Sheet Zinc* has been tending upward, and Domestic has brought as much as 5⅛¢ @ 5½¢. From London we are cabled that the market is a little firmer.

Antimony.—There has been a moderate jobbing demand at 8⅞¢ for Hallett's, and 9½¢ for Cookson's, the former remaining unaltered in London at £37.

Foreign Markets.

FRANCE.

PARIS, August 19, 1885.—*Metals.*—General business in France is still shaping favorably for the fall season. With ample crops and nothing of a disturbing nature to cause uneasiness, the demand for metals is even now reviving, and a fair trade has been transacted. We quote toward the close, in francs, ℔ 100 kg.: *Copper.*—Steady, at 111.25 @ 113.75 for Chili Bars; Ingots and Slabs, 118.75; Best Selected, 122.50, and Pure Corocoro Ore, 115. *Tin*—Sustained at 247.50 for Banca; Billiton and Straits, 245; Australian, 245, and English, 240. *Lead.*—Firm at 30 @ 31, and *Spelter* stiff at 37.25 @ 37.50 francs. *Iron.*—We receive the ensuing from our Saint Dizier correspondent: Now that there is a general movement in Germany, Belgium and Spain to curtail production and arrive at an understanding among makers on the subject, the inference should be that in France the combinations actually formed manage to keep together, but the contrary seems to be the case for there is now a prospect that by January 1 next the Nancy combination will dissolve, and, although we are assured that the Longwy syndicate will adhere unwaveringly to the compact made, we should not feel surprised if it followed the example of Nancy. From Valenciennes we are told, on the contrary, that the situation of Northern rolling mills has much improved since they limited the weekly working days to four, and that it is hoped better prices will soon be obtained. In this city there is no change for the better; both Merchant and Flooring can be shaded, from 13.50 and 13 francs respectively, about 25 centimes. Coal has been dull and barely sustained, and Steam Coal has sold as low as 9 francs, which has caused a good deal of uneasiness among mine owners at the North.—*Moniteur des Intérêts Matériels.*

BELGIUM.

BRUSSELS, August 19, 1885.—*Iron.*—The Iron situation is still precarious, and it is not an easy matter to secure large orders. Prices have gone low beyond measure, so that for export in particular great bargains might be secured both in Beams and Rod Iron. We quote to-day, Luxembourg Foundry Pig, 4.80 francs; Charleroi do., 6.50; Domestic Puddling 4 @ 4.20; Luxembourg, 4.40; No. 1 Merchant, 10 @ 10.50; No. 2, 10.50; Beams, 10.50 @ 10.75; Angles, 10.75 @ 13; Sheets, 13 @ 23.25 francs as a range. The National Branch Railroad Company have not taken the 21½-kg. Steel Rails at 129 francs ℔ ton, and to-day a fresh adjudication, this time for 4000 tons, is to come off. On the 24 prox. the Government will sell its Old Rails and some Cast-Iron goods. *Coal*—Has been unsettled and is tending downward.—*Moniteur Industriel.*

GERMANY.

HAMBURG, August 19, 1885.—*Iron.*—In Rhenish Westphalia there is still considerable pressure exercised on the Pig-Iron market because of a lack of animation. While the stock of Puddling Pig has gone on accumulating, that of Spiegel, on the other hand, has diminished. The latter is about the only sort in which production does not exceed the output. This may also be said of Finished Iron. Foundries complain that there is a lack of work, except in Cast-Iron Pipes. Machine shops are also less active are now merely engaged in completing old orders, without receiving fresh ones. In Upper Silesia prices of Pig are very low, but their cheapness has enabled makers to work off some large lines, more than was turned out during the week. The future of the market and of prices is still very uncertain. Foundries are by no means provided with orders corresponding to their productive capacity, so that the larger works are compelled to encroach to some extent on what is usually left to the small concerns. While this is the case the Steel-Rail works are in receipt of large lines of orders; this relates to the Ronigs and Friendenshutte in particular. Rolling mills have secured work enough to last them three months. The demand for Sheets is such that an advance in price is in prospect. *Metals.*—In this market Iron has been quiet. Lead very firm, Spelter rising and Copper and Tin quiet. From Breslau it is reported that the Schaffgotsch Bobrek Smelting Works will cease producing Spelter altogether, and that one of the works owned abroad has reduced its output, so that between the two there are 1000 tons less produced per month than previously. Both Spelter and Lead shipments were considerable to Russia and Austria, and both metals rising; the former was selling at 26.60 marks ℔ 100 kg., and the latter at 24 @ 25.—*Borsenhalle.*

HOLLAND.

ROTTERDAM, August 17, 1885.—*Tin.*—At a decline of 1 guilder there has been some more business doing, Banca closing at 54.25, and at the same figure deliverable from the next sale. Billiton spot being worth 54, and November delivery 54.25. Amsterdam has also been lower, but shows greater firmness at latest advices, Billiton afloat not being obtainable below 54.25, Banca closing at 54.25 @ 54.50.—*Koch & Vlierboom.*

AUSTRIA.

VIENNA, August 18, 1885.—*Iron.*—The Iron market here has been unsettled by two large failures in the line, the disclosures connected therewith showing that to a considerable extent they were due to the bad condition of the Iron trade in this country. Meanwhile Iron has been dull and unaltered, Sheets being about the only kind of Finished meeting with a brisk, seasonable demand. We quote Pig, 47 @ 56 florins ℔ ton; Merchant, 105 @ 125; Sheets, 160 @ 175, and Beams, 105 @ 115. *Metals.*—While Copper and Tin have been drooping, Lead and Spelter have, on the contrary, been doing well.—*Austrian Trade Journal.*

Trade Report.

New York Iron Market.

American Pig.—Sales of a number of 1000-ton lots have been reported, makers of Agricultural Machinery having been the principal buyers. Beyond this transactions are on a small scale for prompt delivery. We understand that the adjustment of the West Shore Railroad affairs has practically put a stop to the sales of Shenango Valley Foundry Irons in this market, freights having been advanced to figures more than double those ruling during the summer. Very little is heard now of Western Irons, and the Southern Irons are not now pushed for sale. It is reported that one of the Birmingham makers acknowledges that during the summer little more than 10 % of the product of the furnaces was No. 1 Foundry. During the heated term furnaces generally fall off in this respect, a fact to which the scarcity of No. 1 is partly due. During the coming months the supply will be more liberal. A concern in this vicinity has lately put in 3000 tons of Charcoal Iron at a low figure. We quote standard brands of Lehigh and North River Irons, tidewater delivery, nominally as follows: No. 1 X Foundry, $17.50 @ $18.50; No. 2 X Foundry, $16 @ $16.50; Gray Forge, $15.25 @ $15.50; the outside figure is asked for special brands. Outside brands sell for 50¢ @ $1 less than our quotations.

Scotch Pig.—Very low offers are occasionally made, which do not even cover bare cost. Nothing but a small business in jobbing lots is being done. Nominal quotations for 5 and 10 ton lots are as follows: Coltness, $19.50 @ $19.75 to arrive; Gartsherrie, $19.50 to arrive; Shotts, $19.50 @ $19.75 to arrive, $20 from yard; Carnbroe and Glengarnock, $18.50 @ $19 to arrive; Summerlee, $19 @ $19.50 to arrive; Dalmellington, $18.50 to arrive; Eglinton, $17.50 @ $18 to arrive; Clyde, $18.50 @ $19 to arrive. Concessions are made for larger lots and for sales from dock.

Bessemer Pig and Spiegeleisen.—There has been no business in Foreign or Domestic Bessemer Pig. In Spiegeleisen a 5000-ton lot to go to Chicago has been placed at private terms. We quote nominally: Foreign Spiegeleisen, 20 %, $25 @ $25.25; 10 %, $21 @ $21.50; 45 %, $41.50 @ $42, and 80 %, 69.50 @ $70.

Bar Iron.—The features alluded to in our last continue to develop slowly. Sales are more liberal, with the larger concerns fairly filled. There are, however, still a number of smaller mills who are very anxious to sell, and low quotations keep cropping up occasionally, and until these works are fairly sufficient with orders better figures cannot become general. It is noted that even small consumers are beginning to watch the article, with the frequently expressed object of buying supplies if an upward tendency should develop. The next two weeks will go far toward defining the situation. We quote for delivery here in round lots: Common Iron, 1.45¢ @ 1.55¢; Medium, 1.55¢ @ 1.65¢, and Refined Iron, 1.7¢ @ 1.9¢. Concessions from these figures are very difficult to obtain. Store prices are 1.6¢ @ 1.75¢ for Common, 1.75¢ @ 1.8¢ for Medium and 1.85¢ @ 2¢ for Refined. Swedish Iron is quoted $70 a ton, and Imported Nail Rods at $77.50 @ $81, ex-ship, according to quality, n large lines.

Structural and Shaped Iron.—The leading event of interest during the week has been the closing by a Pennsylvania mill of a contract with the Suburban Rapid Transit Company, Second avenue, for the erection of a part of their elevated structure. This contract, which calls for about 1000 tons of material, has been taken at an unprecedentedly low figure, being more than 1/10¢ lower than the price for similar work in this vicinity. A number of round orders for American Beams have been placed, and the sales in small lots are in the aggregate quite fair. Angles may be quoted nominally 1.95¢ @ 2.1¢, delivered, for round lots, and Tees at 2.25¢ @ 2.4¢. Store quotations remain 2.2¢ @ 2.4¢ for Angles, and 2.5¢ @ 2.7¢ for Tees. American Beams and Channels are 3¢ base from dock for all orders. German Beams are selling at 2.7¢.

Plates.—A number of the mills report that they are filled up for a longer or shorter period, and many are holding at 2.1¢ for Tank Plates. As yet this is not so generally adhered to to warrant a change in the quotations, which we repeat for round lots: Common or Tank, 2¢ @ 2.1¢; Refined, 2¼¢ @ 2⅜¢; Shell, 2.4¢ @ 2½¢; Flange, 3.4¢ @ 3½¢; Extra Flange, 4¢ @ 4¼¢, with concessions for large lines. For small lots of Steel Plates the quotations are as follows: Ship, 3¢ on dock; Tank, 2¾¢ on dock; Boiler, 3¢ @ 3¼¢ for Shell, 3½¢ @ 4¢ for Flange, and 4¢ @ 5½¢ for Extra Flange and Fire-Box. Some works quote Tank 2.1¢ at mill for round lots.

Merchant Steel.—Quotations for the range from ordinary to good grades are as follows: American Tool Steel, 7½¢ @ 10¢; Tool Steel of special grades and finer qualities, 12¢ @ 20¢; Crucible Machinery, 4.5¢ @ 6¢; Spring and Tire, 2½¢ @ 2¾¢; Open-Hearth Machinery, 2¼¢ @ 2¾¢, and Bessemer Machinery, 2¢ @ 2½¢; English Tool, 13½¢ @ 15½¢; Common Grades, 7¢ @ 9¢.

Steel Rails.—Eastern mills report a number sales ranging each between 2500 and 5000 tons at $29 at mill, which is the asking price generally. The market is firmer.

Iron Rails.—We hear of a sale of 1200 tons of English Iron Rails, which have been held for a good many years, to a Western road at $22.50. It is reported that these Rails cost the sellers fully $50. The transaction is of interest as probably the last in a once flourishing trade.

Steel Wire Rods.—There has been some activity, and in the aggregate about 5000 tons have been placed, with some negotiations still pending. The usual quotation is $41 @ $41.50. Western mills have been buying before the close of navigation.

Steel Blooms.—There have been sales of small lots of Soft Basic, 6-inch, at $32.50.

Old Rails.—Spot stocks are light, and a number of inquirers are in the market, chiefly from the West. We hear of no sales.

Scrap.—A number of small parcels have been placed. We quote nominally $18 for No. 1 Wrought from yard.

Rail Fastenings.—Business has been more active, though values are unchanged. Spikes may be quoted 1.80¢. Quotations for large lots are 2.55¢ @ 2.65¢ for Bolts and Square Nuts; 2.75¢ @ 3¢ for Bolts and Hexagon Nuts, and 1.55¢ @ 1.7¢ for Splice Bars.

The following communication, issued by Mr. A. R. Whitney, 58 Hudson street, will probably bring out prompt responses from the Iron trade: "Having been appointed by the Executive Committee of the Grant Monument Fund to solicit subscriptions from the Iron trade, I shall head the list with $100, and will forward all checks drawn to the order of Drexel, Morgan & Co., treasurers, soon as received."

Sanderson Bros.' Steel Company, of Syracuse, N. Y., send us their trade circular calling the special attention of the users of Steel to the importance of studying its different tempers with relation to the various purposes for which it is required. For the convenience of their customers, every bar of their Steel bears a label showing the purpose for which that particular temper is suitable. This temper is signified by a number on the label, and also for additional security stamped on the bar in the center, so that whenever a customer requires the same temper again he can have it by simply giving the number. By this means they put in the power of every user of Steel to select the temper which suits him best. It is reported that the Steel made at Syracuse since the present management have had possession is fully equal to their best Steel made in Sheffield, England.

Metal Exchange.

The only sale reported was on Monday, August 31, of 5 tons of Tin, September, at 20.25¢.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, September 1, 1885.

Pig Iron.—The market has developed no new features, but the firmness noted last week and week before is fully maintained. The volume of business is enlarging, and the feeling is one of confidence and strength. The average of sales has doubtless been at figures higher than at any time within three months, although nominally quotations are unchanged. The explanation is this: Prices were supposed to be $15.50, $16.50 and $18 for the three grades, but orders were taken at less money, varying from 25¢ to $1 ₱ ton, the average of concessions being probably about 50¢. Under a more active demand prices have hardened considerably, and, while some little shading is still done, it is exceptional, and for a very trifling amount—50¢ occasionally, perhaps; 25¢ more generally—while the majority of standard brands are held at full quotations. The supply appears to be equal to all requirements, but there is a disposition on the part of holders to limit their sales to deliveries within the next three months, and in some cases to still shorter dates. Buyers are inclined to contract for six months ahead, but such proposals are not received with much favor unless there are other conditions which favor the seller. On the whole, therefore, the market may be said to show improvement of the very healthiest character, viz., a steady and increasing demand, without any undue excitement in prices. What the future may bring forth is hard to determine, but the general opinion is that there will be no material advance in prices—for the present, at all events. Meanwhile a very liberal business has been done on the basis of about $15 @ $15.50, delivered, for Gray Forge, $16 for No. 2 Foundry and $18 for No. 1. In exceptional cases a slight shading has been done from these figures, but the tendency is toward firm, if not higher, quotations. Cold Short and Southern Irons are somewhat irregular, $13 50 @ $14.25 being about the range, according to quantity, quality, delivery, &c.

Bessemer Iron.—There is nothing doing in Foreign Iron, and prices are purely nominal at $19 @ $20.50 for Bessemer, according to brand, and $25 @ $25.50 for 20 % Speigel. Sales of Domestic Bessemer for Open-Hearth Steel have been made to the extent of several thousand tons, with other lots under negotiation on private terms.

Muck Bars.—The demand shows considerable improvement, and lots for prompt delivery are not readily available. Prices are firmer, $26.50 @ $27 at mill quoted, with the majority of sales at the outside figure.

Blooms.—The demand for Steel Blooms is increasing, sales during the past 10 days having been of considerable importance. Prices difficult to quote, but the following give a fair average, namely: Soft Basic Blooms, $33.50 @ $35; Billets, $38 @ $39, and Siemens-Martin, $40 @ $42; extra quality, $43 @ $45; Domestic Blooms, $30.50 @ $32, delivered, for Nail Plate, and $35 @ $36 for Plate and Sheet Blooms. Charcoal Blooms, $50 @ $52; Run-out Anthracite, $43 @ $44; Scrap Blooms, $34 @ $35; Northern Ore Blooms, $34.

Bar Iron.—The demand is fair, but not specially active, at the slight advance which is generally asked. The mills are tolerably well employed, but as yet none of them have secured any large amount of work for future delivery. As a matter of fact, manufacturers have been looking for better prices rather than for more business, and at current rates are only entering orders for about 30 days ahead. There is nothing as yet upon which to base expectations of any advance, although it is almost impossible to buy at as low figures as were quoted some time ago. Ordinarily about $1.75 is quoted for Best Refined Iron, and, while concessions may be had on large lots, prices are gradually hardening to what have hitherto been nominal quotations.

Plate and Tank Iron.—Continued activity must be reported under this heading, as nearly all the mills are running up to their full capacity. The demand during the week has been continuous; no specially large lots have been called for, but the aggregate amount entered is of considerable importance. The outlook is entirely satisfactory, and at the moment everything appears favorable for its continuance. Prices are hardening, and selling rates approach very closely to quoted rates, which are about as follows: Ordinary Plate, 1.9¢ @ 2¢; Tank, 2¢ @ 2.05¢; Shell, 2.5¢; Flange, 3.5¢; Fire-Box, 4.25¢; Steel Plates, Flange, 3.5¢ @ 3.75¢; Fire-Box, 4¢ @ 4.25¢.

Structural Iron.—The demand has been well maintained, and the week past has increased the amount of work at most of the leading mills. New business of considerable importance is coming in sight, so that manufacturers anticipate a demand almost equal to their full capacity. Prices are firm at the rates recently quoted, viz.: Bridge Plate, 2.1¢; Angles, 2¢; Tees, 2.3¢ @ 2.4¢, and Beams and Channels, 3¢.

Sheet Iron.—The demand continues to be very active, and stocks, which recently appeared to be somewhat excessive, are being rapidly absorbed. Prices are about ¼¢ ₱ ℔ higher, and manufacturers not inclined to enter for deliveries much beyond the next 30 days. Quotations as follows:

Best Refined, Nos. 26, 27 and 28	3¾¢
Best Refined, Nos. 18 to 25	3½¢
Common, ¼¢ less than the above.	
Best Bloom Sheets, Nos. 26 to 28	5 ¢
Best Bloom Sheets, Nos. 22 to 25	4½¢
Best Bloom Sheets, Nos. 16 to 21	4 ¢
Flue Annealed	2.75¢
Best Bloom, Galvanized, discount	60 %
Common, discount	62½%

Wrought-Iron Pipe.—The demand has been very active, and prices firmly maintained. Orders for forward delivery are pressed upon manufacturers to an extent which, if accepted, would employ them for the entire balance of the year, but the disposition is to limit sales to immediate deliveries, as higher prices are inevitable if the demand continues. Meanwhile discounts are quoted as follows: Lap-Welded Black Pipe, 62½ @ 65 % off list prices; Butt-Welded Black Pipe, 45 @ 47½ %; Butt-Welded Galvanized, 35 @ 37½ %; Lap-Welded Galvanized, 45 @ 47½ %; Boiler Tubes, 57½ @ 60 %.

Nails.—The scarcity of Nails in the West throws a heavy demand on this market, under which the card rate has been advanced to $2.30. The market is very irregular, nevertheless, and sales are nearer $2.15 @ $2.20 than to the card rate of $2.30. It is difficult to harmonize the conflicting reports, but there is little doubt that $2.20 can be shaded on large lots.

Steel Rails.—The demand for Rails has not been specially large, but the mills have about all the work they can get through with during 1885 (including the usual current demand), and are therefore not pushing sales. The uniform quotation appears to be $29 at mill, and, in view of the understanding that $30 is to be the minimum figure during 1886, it is hardly likely that $29 will be shaded. Still there is always more or less mystery in regard to the Steel-Rail trade, so that it would not be quite safe to say that $29 is an absolutely firm quotation, although that is the understanding.

Old Rails.—There is a pretty steady demand for a good quality of Old Rails, but the supply is limited. Spot lots would probably bring $17.50, Philadelphia, but there are very few offering. Sales of about 2500 tons were made since Saturday at $18, delivered a short distance from Philadelphia, and other lots at $18.25 on the line of railroad.

Scrap Iron.—The supply is light, and with a better demand prices are a shade higher, the usual figures being about as follows: No. 1 Wrought Scrap, $17.50; No. 2 do., $12 @ $13; Horse Shoes, $22 @ $23; Turnings, $13 @ $14; Old Car Wheels, $14; Old Steel Rails, $16; Fish Plates, $22 @ $23; Cast Scrap, $13 @ $13.50; do. Turnings, $9 @ $10.

Pittsburgh.

Office of *The Iron Age*, 77 Fourth Avenue, PITTSBURGH, PA., September 1, 1885.

General business is improving, and the feeling is gaining ground that better times are near at hand. There is encouragement in the fact that our business men are attending more strictly to legitimate trade and less to speculative ventures, many having been badly bitten in the past. There is great dissatisfaction here with the selling out of the Southwest Pennsylvania Railroad by the Vanderbilt faction to the Pennsylvania Central Railroad. It is claimed that the transaction is illegal and will be resisted by the State authorities, but this, to say the least, is doubtful. The Vanderbilts have sold the controlling interest in the Southwest company to the Pennsylvania Central, and it is now rumored that the same faction has sold out their stock in the Pittsburgh and Lake Erie to the Pennsylvania Central, and that the latter company will control the Pittsburgh and Lake Erie Road also. This, if correct, would give the Pennsylvania Central control of all the lines centering here, with the exception of the Pittsburgh and Western, which is controlled by the Baltimore and Ohio Railroad. The Pittsburgh and Lake Erie Road was built mainly by Pittsburgh capitalists, and the main object was to give Pittsburgh an outlet independent of the Pennsylvania Central, but the Vanderbilts have succeeded within the past few years in buying up a good deal of the stock. The Southwest Pennsylvania deal was bad enough, but to let the Pennsylvania Railroad get the control of the Pittsburgh and Lake Erie would be a hard dose indeed for our people to swallow. The action of Mr. Andrew Carnegie is severely criticized by some of the newspapers in connection with this huge railroad deal, but he says he did just what any other business man would have done under similar circumstances.

Iron Ore.—The Ore trade continues much the same as noted for some time past. The increased activity in Pig Iron has as yet had no effect on the Ore market, but it may later on. Some of the furnaces in blast may buy more freely, and some of the idle furnaces may blow in. However, the probability is that the demand will continue of a hand-to-mouth character during the remainder of the present year.

Pig Iron.—We have had an unusually active market the past week, and included in the sales reported were several large blocks, ranging from 1000 to 1500 tons each, for delivery during next 60 days. While there has been no quotable advance established as yet, a much firmer feeling obtains, and for the time buyers are more numerous than sellers. Well-known brands are held with considerable tenacity, and but few, if any, furnaces are now willing to contract for future delivery at present prices. Consumers who until within the past week or two were refusing to buy beyond their immediate actual wants are willing to contract ahead, which indicates an apprehension on their part that possibly prices might go higher. It is true there are a good many idle furnaces ready to blow in just as soon as there is any encouragement to do so, and thereby increase production, and this, it is thought by well-informed operators, will prevent much of an advance, for the present at least. There is a much more cheerful feeling, however, in consequence of increased activity, and, unless there should be a falling off in the demand for finished goods, the prospect is favorable for a good, healthy trade in raw Iron during the remainder of the year. Quotations may be fairly given as follows:

No. 1 Neutral Mill	$14.75 @	$15.00,	4 mos.
No. 2 Neutral Mill	14.00 @	14.25,	4 "
White and Mottled	13.50 @	14.00,	4 "
All-Ore Mill	15.00 @	15.50,	4 "
No. 1 Foundry	16.50 @	17.00,	4 "
No. 2 Foundry	15.00 @	15.50,	4 "
All-Ore Foundry	17.50 @	18.00,	4 "
No. 1 Charcoal Foundry	21.00 @	22.00,	4 "
Cold-Blast Charcoal	25.00 @	27.00,	4 "
Bessemer Iron	17.00 @	17.50,	4 "

Included in the sales reported were 1500 tons Neutral Mill at $14.50, cash; 1500 do. at $14.25, cash; 1000 do. at $14,50, four months.; 1000 do., $14.25, cash, and 300 tons Bessemer at $17.50, four months.

Manufactured Iron.—Orders continue to come forward freely. The mills are mostly in operation, and some of them have about all they can do. Prices are firmer, but unchanged. There is usually an improvement in the demand about the 1st of September, but this year it set in a little earlier than usual, owing in large part to very light stocks, both in the hands of jobbers and consumers. The outlook is favorable for a good trade during the next 60 days, and it may hold out until the close of the year. We continue to quote prices on a basis of 1.60¢ @ 1.70¢ for Bars, 60 days, 2 % off for cash.

Nails.—The Nail situation remains substantially unchanged. The strike still goes on, and there is no telling when it will be brought to a close. Both sides appear determined, and both are confident of success, but it is evident that sooner or later one or the other must succumb. Eastern manufactures are no doubt benefited by the strike, as it enables them to get into the Western markets, and while this is distasteful to Western manufacturers they appear, as already stated, determined to fight it out, realizing as they do that it is a matter of vital importance with them to win, even if they have to prolong the contest several weeks yet, and thereby lose the fall trade. There is no stock here to speak of, and buyers, realizing this, are ordering elsewhere.

Wrought-Iron Pipe.—There is no abatement apparently in the demand; mills are all very busy, and it looks as if this would continue to be the case until the close of the year. The demand is chiefly for natural-gas Pipe, for which some of the mills have large contracts. Prices firm, but unchanged. Discount on Black Butt-Welded Pipe, in car-load lots and upward, 47½ %; Galvanized do., 37½ %; less than car lots, 45 % and 35 %; Black Lap-Welded, in car lots and upward, 65 %; do. Galvanized do., 47½ %; less than carload, 62½ % and 45 %; Boiler Tubes, 60 % off; 2-inch Line Pipe, 10¢ ₱ foot, net; 8-inch Dry Pipe $1.15; 5⅝-inch Casing, 36¢.

Steel.—For some kinds of Merchant Steel there is a very fair demand, while for others it is light. There is no doubt that trade in the aggregate is much better than it was a month ago. The demand for Steel Plates is steadily increasing; such a thing as making a boiler out of Iron is no longer heard of, and Steel is now beginning to take the place of Iron for Beams, Shafting and all kinds of structural work.

Old Rails.—There has been an active demand developed for Old Iron Rails within the past week, and we can report sales at $19, showing an advance of 50¢ ₱ ton, and $1 more than consumers expected to pay a month ago. There is considerable inquiry from mills out in the valleys, and there is no trouble in selling for near-by delivery at the price. Some sellers predict that the price will go to $20 before long. Old Steel Rails are also in better demand and firmer. We now quote at $17 @ $18, according to lengths.

Railway Track Supplies.—Prices, while firmer possibly, remain unchanged. An improved demand is looked for from now until cold weather sets in. Spikes, 1.90¢, 30 days, delivered; Splice Bars, 1.60¢ @ 1.70¢; Track Bolts, 2.75¢ @ 2.85¢.

Steel Rails.—Heavy Sections are still quoted at $29, cash, at mill, with the mills here and elsewhere sold up for the next two or three months. Some of them, it is said, have about all they can do for the rest of the present year. It is insinuated in some quarters that orders can be placed below the price quoted, but if the mills are all oversold we can see no reason for cutting prices. A good many large contracts were made prior to the meeting at Long Branch, before prices were advanced.

Crop Ends.—There does not appear to be much inquiry for new Steel Rail Ends, and, in the absence of sales, we quote nominally at $18.25 @ $18.50, and Steel Bloom Ends at $17.50 @ $17.75.

Scrap—Is firmer, with a fair demand, but prices remain unchanged. No. 1 Wrought Scrap, $16 @ $17 ₱ net ton; Wrought Turnings, $12 @ $13; Cast Borings, $10.50 @ $11, gross ton; Old Car-Wheels, $14.50, gross.

Window Glass.—Prices remain unchanged, as follows: Single Strength in car lots, 70 and 10 %; Double Strength, 75 and 5 %.

Coke.—Trade, if anything, is a little better; no change in prices. Blast Furnace Coke is still quoted at $1.20 ₱ ton on cars at ovens. Freight from ovens to Pittsburgh, 80¢ ₱ ton.

Chicago.

Office of *The Iron Age*, 36 and 38 Clark St., Cor. Lake St., CHICAGO, August 31, 1885.

Hardware.—Jobbers continue to give out favorable reports about the trade. Each successive week is noted as being a little better than the preceding one. In looking over the floors of the shipping departments we find them filled with goods of every description suitable for fall and winter trade, ready for shipment, and as fast as one lot is removed another takes its place. There is strong evidence that there is more than the usual activity at this season of the year. Some jobbers are of the opinion that the customary fall trade has started earlier this year, which would account in a measure for the present activity; but the majority hold that there is no reason why that should be, and claim that they have substantial faith in the improvement being a permanent feature of the market. Everywhere retailers are buying more freely and anticipating their wants to a greater extent than they have done for several years. They give as their reason that crops are excellent, that farmers will be less cramped for money, and that a greater disposition for general improvements requiring new goods is shown among all classes of consumers. In a general way all lines of goods are being sold at a schedule price, which is steadily stiffening. The changes that occur are now upward, but very gradual.

Barb Wire.—Nothing of importance has occurred during the past week. Buyers are doing more in the way of inquiries than in buying. The demand may be a trifle better from Texas for immediate delivery, but local trade continues quiet for present and future orders. Prices heretofore quoted are unchanged, and some of the makers are booking orders for October delivery at the same price. Higher prices are predicted by all interested in the trade, but the time they will go into effect depends largely upon circumstances. The committee of the new company reported progress in securing signers at the meeting last week, and were instructed to continue their work until a decision has been obtained from all the manufacturers.

Nails.—The market is in about the same position as a week ago. The demand is

much better than can be readily supplied, and many orders are booked with instructions to ship as soon as they can be had. Several prominent jobbers report that they have been out of leading sizes for a week or 10 days. Iron Nails in regular assortment are quoted at $2.25 ₱ keg, sold in small lots only. Odd sizes, of which there is a surplus, can be bought at 5¢ @ 10¢ ₱ keg less. In fact, even these figures have been shaded through sales made from a "job lot" which was recently dumped in this market, but it is said that the cargo contained the mill's accumulation of odds and ends during the last 10 years. Fence Nails, Finishing and Clinch Nails could be bought at $2.15, 2 %, 60 days, in carload lots. Steel Nails are scarce and held firm at $2.40. Carload orders are not accepted. One jobber says their assortment is full, but not heavy.

American Pig Iron.—A market that gives to one dealer an aggregate of 2000 tons made up from orders ranging from one carload to 50 tons in one day is now called fairly active. As this is no longer an exceptional occurrence it is certainly safe to presume that there is not only a better feeling, but a decidedly better trade. There are other sellers who are doing equally well in proportion to the number of furnaces they represent, which is a far better showing than anything they have had for several years. For some weeks reports have been rife that prices were stiffening up, &c., but, without being able to raise quotations, they were regarded with more or less suspicion. The first positive proof came to the surface last week. One sales agent says that they have lost orders aggregating over 1000 tons, because the furnaces refuse to sell at prices named some 30 days ago. One Lake Superior Charcoal furnace has advanced their price $1 ₱ ton to all buyers, which makes their lowest figures $19, four months, for No. 1, 2 and 3, while we give it as a general quotation on carload lots. Nos. 4, 5 and 6 are steady at $19.50; Lake Superior Coke, All-Ore, is unchanged at $18; Cinder Mixed was in better request at $17; Ohio Standard Blackbands were in better demand in a small way and quoted firm at $18.50; Southern, No. 2, is quoted at $16.50; No. 2½ at $15.75; No. 3 at $15, and Mill Iron at $13.50 @ $14, as heretofore, but several of the furnaces have advanced their price from 50¢ to $1 ₱ ton. We do not, however, change quotations, as no sales have been made at the figures asked. However favorable the market may appear for an advance, it is nevertheless true that in the present state of business consumption would not sustain it. The most sanguine merchants in the trade do not expect much better things than a firm support of present prices for the balance of the year, and this they consider will be a great advantage to gain in so short a time. A boom in price is not wanted by those who have the best interests of the trade at heart, and any advance in price that does not originate from an increase in healthy consumption will be a failure.

Structural Iron.—Mills rolling architectural shapes report that the trade for the present is quite good enough. They have plenty to do on immediate delivery and are pressed for part of this work, but the demand for stock to be delivered late in the fall is not very encouraging. Proposals which were to be opened last week are yet closed, and these, with one other large job that is to be let within the next 10 days, are all that is in sight at present. In small lots the trade is quite brisk from stock on hand. No change in price on Beams and Channels, and the order frequently hunts the parties who can fill it most promptly.

Merchant Steel.—Nothing of special importance has transpired during the week. There has been a fair amount of buying at irregular prices, but it is not an unusual thing now to hear of a manufacturer who has been trying some of the very cheap stuff returning to a brand that he has found more reliable. The low prices that are made are said to be evidence that the makers are losing money or correspondingly reducing the quality of their Steel. There are makers of brands who are unwilling to meet these low prices, which, for the moment, gives them less trade, but does not permanently injure their business. We quote to ordinary trade Tool Steels at 8¢ @ 9¢; Bessemer, 3¢; Open Hearth, 2¾¢; Crucible, 4½¢ @ 5¢; Plow Steels (syndicate), 5½¢ @ 6¢.

Steel Rails.—All kinds of reports have recently been circulated through the press with reference to the price on Steel Rails and the demand for the same. The market is certainly not more active than a month ago, and, if anything, there were fewer inquiries last week than the week before. The statement that the N. C. R. M. Co. had sold a large lot of Rails since the meeting of manufacturers at Atlantic City is denounced by them as absolutely false, and they further say that they have not sold a ton of Rails at any price since that time. What Rails could be bought for is an open question. Mills are not willing to make a price so long as they have no buyers. A nominal quotation would be about $29 @ $30 for Heavy Sections.

Bar Iron.—Very little change has occurred in the market for New Puddled Iron. Sellers are quoting $1.80 rates to local trade and $1.65 @ $1.70 from mill. There appears to be an upward tendency in prices, but so long as the low-priced mills are not filled up higher prices on the better grades cannot be obtained. Common Iron is quoted from stores at $1.70 rates, and on mill orders such figures are made at any price that is likely to catch the order.

Old Rails.—The market, if anything, is firmer in price; the demand is neither large nor urgent. Quotations range from $16.50 to $17.50, Chicago delivery, and $16, Milwaukee. It is said that $17.50, cash, was realized on a lot for Eastern shipment.

Black Sheet Iron—Those who have the Iron are doing a lively trade in Black Sheets. The demand is very much in excess of the supply, and prices are obtained without a murmer that were laughed at some time ago. Manufacturers are keeping up their price and are several weeks behind on deliveries. Jobbers are adhering to the following prices out of store: No. 24, $3; Nos. 25 and 26, $3.10; No. 27, $3.20

Galvanized Iron.—Stocks are yet badly broken, but in a better shape than last week. Makers are having all they can do, and prices have been stiffened through the change. Jobbers continue to quote Juniata at 60 % off, and Charcoal at 60 @ 10 % off, to small trade from store.

Old Wheels.—There appears to be no special demand, though an occasional sale is made at prices ranging from $14 to $14.50, cash. This price is not satisfactory to large holders and only such lots as are within easy access to place of delivery are let go by them. Small dealers who need to realize more promptly are doing most of the trading.

Scrap Iron.—The market has improved very much in the last two weeks. Numerous inquiries have been received from mills running, and also from those who are getting ready to start up. No. 1 Mill Scrap is quoted at $13.50 @ $14, No. 2 at $8.50 @ $9, and Selected Forge at $16 50 @ $17.50. We make the following quotations as dealers' purchasing price: Wrought Scrap, $13; Car Axles, $20; Iron Pipe, $11; Steel Tire, $14; Cast Scrap, $12; Wrought Turnings, $8.50; Stove Plate, $8.50; Malleable, $6.

Chattanooga.

Office of *The Iron Age*, Carter and Ninth Sts., CHATTANOOGA, August 31, 1885.

There appears to be no cessation in the activity in all lines of business that was inauguarated some few weeks ago, in anticipation of the large crop prospects of the South. The railroads are feeling sensibly the great increase of tonnage, and are now doing a large and profitable business in the hauling of general merchandise. An item of considerable interest is the prospective completion of the lines that are to connect the town of Sheffield, on the Tennessee River, with the Coal and Ore fields that lie to the north and south of it. Should this work be accomplished, it will add another point at which cheap Iron can be made, and when made it can be put into the Western markets cheaper, so far as freight is concerned, than from any other furnace in the Southern districts, but this is a thing of the future. The projection of new furnace plants in the South is still the order of the day, and one by one they make their appearance. Four are now actively under construction, and one more is quite certain to be built, while the work is being done to bring into shape the construction of three more at an early day. One of the products of the South which heretofore has received but little attention is sorghum. One foundry in Alabama of rather limited capacity has turned out in the last three months 1784 sorghum mills and evaporators, and many other concerns have been running to their full capacity on the same. The works here are running on them to their full capacity and are declining orders every day. General activity is being manifested in all the manufactures in this vicinity, and some of them are running night and day.

Pig Iron.—We have to report firmness in this market. Many sales have been made at an advance of 25¢ @ 50¢ ₱ ton for the favorite brands. At the same time there has been some large transactions at former prices, which have cleared up the yards and stocks are low, but the position of producer and consumer has undergone a radical change. Producers are now naming their prices, and, if not accepted, the transaction is off. On this basis, however, most of the furnaces are selling nearly up to their capacity for deliveries in the immediate future, and there is no such begging for orders as has been the rule during the months that have passed. Although this is certainly encouraging to furnacemen, the remuneration for making Pig Iron is far from what it ought to be. Money has been scarce, but hope abundant. The latter has in the last year or two made many thousand tons of Pig Iron, and is today constructing several new furnaces. It is difficult at the present time to give correct quotations on Pig Iron. Some 35 carloads of favorite brands of No. 1 Foundry have been sold during the past week at $14.50 @ $14.61 @ $14.75, and it would take $15 to get an order booked for 1000 tons of the same Iron. Some round lots of Gray Forge have been sold at a figure between $11 and $12 at the furnace, and No. 2 Foundry may be quoted at $13.25 @ $13.50. The increase in the consumption of Pig among the Southern industries is quite marked, and it would be a low estimate to say that it is not less than double what it was one year ago.

Cast Pipe—Continues active. The works have now contracts from Kansas, Nebraska, Arkansas, Texas and California, with more orders coming.

Birmingham.

BIRMINGHAM, Ala., August 31, 1885.

Nearly every line of business is enjoying a foretaste of the good things promised for this fall by the excellent crops. In several counties of Middle Alabama the bolt-worm has been doing some damage for the last 10 days, but its ravages will not prevent the State's making far better than an average cotton crop, and are not materially affecting business arrangements that took no account of it. Already buying is considerably brisker, and the railroads report quite an unusual movement of freights for this time of year.

Pig Iron.—It is still true that in actual results the Pig-Iron trade is not conspicuously responsive to the stimulating influences that pervade the commercial atmosphere. While there is a gradually increasing volume of inquiry on the whole, the demand cannot be said to be materially sharper than it was a month ago, and there is nothing to boast of in the matter of prices. Fifteen dollars at the furnace has been the top of the market for the past week, a few carloads of No. 1 Foundry having sold at that price. But evidences of substantial encouragement in the feeling of the trade are not wanting. One of the most conclusive of these is the fact that, in addition to the Williamson plant, for which the foundations are now laying, another new furnace is to be built by the Woodward Iron Company, who already have one in operation.

Finished Iron.—The rolling mills have nothing to ask but better prices, and it seems likely that these will be had now in one line at least. In concert with the trade elsewhere, an advance of some 25¢ a ton on Sheet and Plate Iron, to take effect at once, is about accomplished. The demand for every kind of Iron rolled here is good enough.

Nails.—Judging from current newspaper talk, the improvement in the Nail trade has reached the Brierfield Iron Company, the only concern in Alabama that make Nails. Some significant shipments from their mills to large buyers in the State are chronicled.

Cast Pipe—The improved demand in this line induced the Birmingham Iron Works to put their Pipe department in operation again to-day. It had been idle for several months, although it has no competitor in the State.

Miscellaneous.—The foundries and machine shops are not only busier than they have been for a long time, but as a rule are doing a somewhat more satisfactory business in an another important respect; the volume of work has reached a point where there is less disposition to cut prices. There is gratifying promise of new works here to make specialties.

Ore.—This is a comparatively quiet time at the Ore mines, as several of the furnaces that they supply here and in the Chattanooga district are out of blast, undergoing repairs.

Coal.—Several small Coal concerns near Birmingham are idle for lack of orders, but with others, especially the large operators who supply the Iron trade, business is already beginning to take on a fall aspect. The Pratt Coal and Iron Company, whose business may usually be taken as an index to the trade at large, have increased their daily output from 1250 to 1500 tons a day in the last week, and in a few days will be mining from 2000 to 2500 tons.

St. Louis.

ST. LOUIS, MO., August 31, 1885.

While the market has not shown any remarkable changes during the past week, the improvement before referred to is maintained, and increasing orders give manufacturers assurance of continued activity during the fall. The settlement of the difficulty between the Wabash Railway and Knights of Labor has removed the apprehension of a repetition of the former blockade of freight. The assignment of Messrs. Allen & Blaisdell, proprietors of the Western Iron Boat Building Company, on the 28th inst., was not unexpected by those acquainted with the affairs of the firm and the distress they have been under for several years, owing to lack of sufficient work for the large works and the severe competition encountered. Both members are competent and popular, and a settlement may result in resumption of the business.

Hardware.—The fall trade has fairly set in, and jobbers are doing a satisfactory business. Orders are becoming less restricted, and the impression is evidently gaining ground that prices are safe for larger orders.

Merchant Iron.—Prices remain unchanged at the stores, with improved demand for better grades. During the early part of the week the reports from Pittsburgh caused an uneasy feeling, and prices on Sheet Iron became firmer; the signing of the scale was therefore received with satisfaction by Sheet-Iron workers, as their business is increasing, and any interruption of supply would cause some damage, as the bulk of the Heavy Sheet is supplied by Pittsburgh mills.

Nails.—The present low rates of freight are enabling the Eastern mills to supply Western jobbers at prices about equal to Wheeling figures. Report of manufacture of Steel Nails at Centralia, Ill., excites considerable interest. The situation in Belleville is increasing in complication. The Feeders' Union has increased to 133 members, an addition of 55 members during a week, and work is still continued at the Western Nail Mill, though only about six machines are employed. The nailers and feeders have not yet resorted to violent means of intimidation, and seem confident of failure of theattempt to operate the mill without their assistance.

Wire.—As there was a very small stock of required kinds of Barbed Wire on hand, the demand, which commenced in the early part of August, caused a sudden requisition on mills for immediate shipments, and, as most of the unlicensed factories do a hand-to-mouth business, freqvent complaints of tardy shipments have been common. The licensed manufacturers have enjoyed an advantage recently in their ability to contract for larger quantities, and the mills have booked orders for large quantities from Western factories lately at prices somewhat below $2.75 here for the Annealed and Bright Wire for Barbing. As the fall demand promises to be much greater than that of 1884, it is probable that prices will be advanced. For prompt shipment of small quantities, say one to five cars, prices at present are firm at $2.75 @ $2.85, according to quality of Wire and credit of buyer.

Spelter.—The Galvanizers are showing more confidence in placing orders, and inquiries denote prospect of improvement in this metal during September. There is no change in price.

Barbed Wire.—At the rate of increase of work during the past month all of the factories will be running overtime in September. Prices are firmer, with an upward tendency, caused by anticipated steady demand during the fall. On the 27th inst., in the United States Circuit Court, in the suit of Washburn & Moen Mfg. Co. *vs.* Stevens Fence Company *et. al.*, James R. Ashley and S. N. Stevens withdrew answers and consented to decree against them without damage. This is in consequence of Judge Brewer's decision on the Glidden patent, the Stevens factory having made only the Glidden Wire. As nearly all of the unlicensed factories have ceased making the Glidden Wire and substituted the Brotherton or similar Barb, the question that will prove of considerable interest in the fall term of the United States Court will be whether the Glidden patent covers the Brotherton and other Wire barbs. It is noteworthy that the largest unlicensed factory has lately added five machines that make the Barbed Wire with a flat barb cut from plate, instead of using a round Wire for barb.

Lead.—The condition of the Lead market in the early part of the week was described as "strong, but dull," with prices of $4.20 for the Refined and $4.15 for the Hard. On the 27th inst there was some business done at $4.10, East St. Louis, for the Hard, and, although $4.15 has since been asked, it seems probable that it can be had at $4.10. The Refined is held at $4.20, although some was sold on the 28th inst. at $4.17. Local consumers of the Refined Lead refer rather significantly to the prices of that kind in New York, and present rate of freight.

Following are among the recent importations at St. Louis: St. Louis Stamping Company, 345 boxes Tin Plates, Liverpool; Bridge & Beach Mfg. Co., 161 boxes Tin Plates, Liverpool; Groom Shovel Company, 1183 bars Steel, Antwerp; A. F. Shapleigh & Cantwell Hardware Company, 75 Anvils, Liverpool; C. & W. McClean, 19 cases Guns, Birmingham, and 12 cases Guns, Liège; Simmons Hardware Company, 6 cases Guns, Birmingham, and 1 case Bicycle Furnishings, Birmingham; L. M. Rumsey Mfg. Co., 6 Hansom Cabs, Wolverhampton; Hubbell & Randell, 1 case Hardware, Bremen; Excelsior Mfg. Co., 100 boxes Tin Plates, Liverpool; Standard Stamping Company, 110 boxes Tin Plates, Liverpool; E. H. Linley, 195 bales Steel, Sheffield; Mallinckrodt Chemical Company, 47 casks Fire-Bricks, Liverpool.

W. H. SHIELDS, 305 Olive street, St. Louis, reports as follows, under date of August 31, 1885: The market is about as last reported, but with a little more inquiry, principally for the better class of Mill Irons. Ohio Softeners are still being offered at very low figures.

CHARCOAL FOUNDRY.	
Missouri	$15.00 @ $16.50
Southern	17.50 @ 18.50
COAL AND COKE FOUNDRY.	
Missouri	14.00 @ 16.00
Southern	15.00 @ 17.00
American Scotch	16.00 @ 19.00
MILL IRON.	
Missouri	14.00 @ 14.50
Southern	13.50 @ 13.75
CAR-WHEEL AND MALLEABLE.	
Southern	20.00 @ 24.00
Lake Superior	20.00 @ 23.00
SCRAP, ETC.	
Old Car Wheels	14.00 @ 14.50
Old Rails	15.00 @ 16.00
Wrought Scrap, No. 1	55¢ @ 60¢
Cast Scrap, No. 1	45¢ @ 50¢
Connellsville Coke (East St. Louis)	5.30 @ . . .

Louisville.

W. B. BELKNAP & Co., Louisville, under date of August 31, 1885, report as follows: The situation seems to improve as we leave the extreme heat of summer behind us and approach the fall season, with its demand for work. The volume of trade has materially increased within the past fortnight, and there is every evidence of a slow but healthy advance. The extreme low prices made 60 days ago have almost without exception been withdrawn, and the great difficulty now experienced is to maintain prompt and ample supply of stock. There is a cautious feeling which prevents overbuying even on the present low basis, and this is one of the very elements which gives strength to the situation. Everybody seems encouraged, everybody seems hopeful. Credits are improving and collections fully up to the average. The various expositions and fairs are being liberally advertised over the country, and during the month of September we shall expect to see a large passenger movement on the railroads and into the cities. *Bar Iron.*—The stocks of Bar Iron are evidently much reduced. Many of the mills take advantage of the summer stop to close out their entire warehouse contents, and indicate their purpose of running on orders exclusively. They will discover, however, if the demand is good, the inconvenience of such a course to the trade in general, and doubtless be induced to fill up their racks for us again. The Southern mills claim to be running full and getting better prices than are attainable in the Ohio Valley. Be that as it may, there is a general and healthy movement in Iron, and when that moves we expect to see the whole list respond. *Hoops* and *Bands.*—There is nothing especial to note in this branch. Orders compare fairly with other kinds of Iron, possibly not quite so large. *Sheet Iron.*—The most noticeable activity is manifested in this article. Without any concerted effort on the part of the manufacturers there has been a substantial advance, and we have rarely seen inquries so numerous as at the present time. The heavier gauges are fully $2 @ $3 ₱ ton higher, while the lighter Iron has been marked up in some cases as much as $5 @ $6 ₱ ton. *Steel.*—There is a fair movement in almost all grades of Steel—Tool, Agricultural and Machinery—that is particularly gratifying, for it all means new work and new investments. *Nails.*—Whenever there is anything interesting in the Iron market it is apt to be reflected in the somewhat speculative article of Nails, and so it is in the present case; the limited production and the constanly-increasing demand as fall approaches has produced a pronounced scarcity. The Western mills have marked up their prices 10¢ or 15¢ ₱ keg, and the Eastern mills, which were relied on to supply the deficiency in the West, have taken advantage of the situation and followed suit. From the resolutions of the recent Nail meeting, it would seem that the manufacturers are determined in their present stand, and consequently we need expect no cheaper Nails for some time to come. *Wire.*—While there are various rumors of an advance on Wire Rods varying from $2 to $5, we cannot learn authentically of the reason, though by the lowest figure paid it seems to be fully warranted. However, as the demand for Finished Wire, both Plain and Galvanized, is increasing daily, and the quantity required for fencing this fall, we think, will be larger than ever before, we do not see why the price should not reflect it. Indeed, it is no easy matter to keep up stock to the full requirements of the trade already, and we look for something brisk during the next 60 days. There seems to be rather more attention paid to the matter of license, and orders are coming in with that limitation placed on them where previously no attention was paid to it. *General Hardware*—Is sharing the movement up the gentle acclivity. Both Machine and Carriage Bolts are a trifle higher, while almost every mail bring us word of some item of more or less importance that seems to be gaining ground. Manufacturers of seasonable goods are swearing by full order books, and the countenances of those who call upon us seem to be losing the extreme length of last spring, and gradually resuming their normal extension in the transverse line of satisfaction. The smiles are so broad, so genuine and persistent that we cannot believe them to be of that temporary character which is purchasable by the conventional profit on a keg of Nails.

GEORGE H. HULL & Co., of Louisville, report to us as follows, under date of August 31, 1885: The Pig-Iron market is attended with the same firmness of tone as noted at the date of our last report. Several furnaces have advanced the price 25¢ ₱ ton, and we hear of sales made at other points at the advanced price. No sales have been reported here at the advance, but it is likely that there will be in the next few days. The volume of sales is still very satisfactory, although perhaps not so large as last week. We quote for cash in round lots as below:

PIG IRON.	
Southern Coke, No. 1 Foundry	$16.00 @ $17.00
" No. 2 "	15.00 @ 15.75
" No. 2½ "	13.50 @ 14.25
Hanging Rock Coke, No. 1 Foundry	15.50 @ 16.00
Hanging Rock Charcoal, No. 1 Foundry	20.00 @ 21.00
Southern Charcoal, No. 1 Foundry	17.50 @ 18.50
Silver Gray, different grades	14.00 @ 15.00
Southern Coke, No. 1 Mill, Neutral	13.00 @ 13.50
" " No. 2 " "	12.50 @ 13.00
" " No. 1 " Cold Short	12.75 @ 13.00
Southern Charcoal, No. 1 Mill	16.00 @ 17.00
White and Mottled, different grades	11.00 @ 12.00
Southern Car-Wheel, standard brands	23.00 @ 24.00
Southern Car-Wheel, other brands	18.00 @ 20.00
Hanging Rock, Cold-blast	23.00 @ 24.00
" Warm-blast	18.00 @ 20.00

The market for Scrap Iron continues very dull. We quote for cash in round lots as below:

Rails, ₱ ton	$16.00 @ $16.50
Wheels, ₱ ton	13.00 @ 14.00
No. 1 Wrought, ₱ 100	.70 @ .75
Country Wrought, ₱ 100	.50 @ .60
No. 1 Cast, ₱ 100	.50 @ .55
Boilers, cut, ₱ 100	.60 @ .65
Boilers, uncut, ₱ 100	.40 @ .50
Axles, ₱ 100	.90 @ .95
Flues, Tanks and Sheets, ₱ 100	.30 @ . . .
Burned Scrap, ₱ 100	.20 @ .30

The Gere Iron and Mining Company, of Port Leyden, N. Y., are remodeling their No. 1 (Gracie) stack and expect to put it in blast about September 15. The furnace is to be relined throughout and new hearth and boshes put in, will be run cold blast on a new mixture of thoroughly roasted ore, and is expected to produce a very superior quality of cold blast charcoal pig.

The New Zealand Government has received a proposition from the Oceanic Steamship Company for the continuance of mail service from San Francisco,

Trade Report.

General Hardware.

The market for the past week has been remarkably steady as regards prices, and very few quotations need revision. There is, however, we are gratified to report, evidence of an improved feeling and of increased firmness, although with few, if any, actual advances. Manufacturers are in some lines withdrawing their extreme quotations, thus leaving themselves free to avail themselves of the advantages of any favorable turn in the market. In other cases they are naming sligthly advanced figures on certain lines, and they evince more generally than for a long time a disposition to adhere to their prices, refusing to make concessions to the views of buyers as freely as heretofore. In a few lines of goods stocks in manufacturers' hands are low, and delay occurs in filling orders. These indications of a stronger condition of the market are referred to by the trade with satisfaction, and are the more significant as not resulting from any concerted action on the part of the manufacturers, but as a healthful reaction from the extreme low prices that have prevailed. Manufacturers are apparently becoming tired of making goods at little or no profit. The volume of business is fair, and indications of the increased activity are seen on all sides. The opinion is freely expressed that if the demand continues prices will soon be firmer, and the market be more satisfactory than it has been for some time.

NAILS.

At a conference of the Eastern Pennsylvania mills on the 27th ult. the price of Nails was advanced to $2.20 for large lots and $2.30 for small orders, the advance being agreed to by other mills not represented at the time. The continued heavy drain upon the Eastern mills, who have been called upon to practically provide for the demand of the whole country, has reduced stocks to a low ebb and has filled the order books of the mills, so that they are in an exceptionally strong position, so long as the strike in the Western mills continues. The advance has brought out a number of small buyers, forced to provide for immediate requirements, and dealers who have purchased round lots. There is nothing whatever of the speculative element in this movement. It is the outgrowth of special circumstances, the abnormal restriction in the output, which may terminate at any moment, and the general low ebb into which stocks in the hands of consumers have been allowed to drift. The latter feature is one that is likely to exert a longer-continued influence than the former. We discuss the Nail situation in the West editorially. Steel Nails are quoted $2.40 to $2.45 from store.

BARB WIRE.

August sales are generally reported as having been on a more liberal scale, and there is a little better feeling, with a disposition in some quarters to demand better figures. We quote nominally 4.35 cents for carload lots of Four-Point Galvanized Barb Wire, and 4.50 cents for small lots.

MISCELLANEOUS PRICES.

The market for Augers and Bits continues without special change, the tendency being, as we have before remarked, toward firmer prices, some of the companies having advanced their quotations. No change, however, has been made in the price of the Douglass Mfg. Co.'s Augers and Bits, which are still quoted by the Russell & Erwin Mfg. Co. at discount 70 per cent.

The following are the prices of the Richmond Weather Strip Company, Richmond, Ind., on Rowlett's Independent Automatic "Perfection" Weather Strip, the list being as given below, subject to the quantity discounts named :

	Per doz.
Walnut	$6.00
Ash	5.50
	Discount.
2 doz	30 %
4 doz	30&5 %
6 doz	30&10 %
10 doz	30&10&10 %
Double Door Strip, per pair	$1.25
	Discount.
1 doz	30 %
2 doz	30&10 %

For further information concerning these Weather Strips we would refer our readers to the advertisement on page 38.

The prices of Hindostan, Washita, Arkansas and other Oil Stones have been advanced about 10 per cent., as the result of a combination between the manufacturers having control of these lines. The manufacturers of Scythe Stones have also come to an agreement, but no change has been made in price. The market in both of these lines is, however, characterized by increased firmness.

The manufacturers of Sheet Copper and Sheet Brass are on some lines behind their orders and show a tendency to stiffen prices. Buyers also are said to be placing orders more freely, considering it not unlikely that there may be an advance.

The condition of Tinware, Stamped, Pieced and Japanned, is unsatisfactory, and prices are irregular and lower. There is an animated competition between the different manufacturers, and quotations are more or less freely cut.

The Covert Mfg. Co., West Troy, N. Y., in their advertisement on page 47, call attention to the special features of their Patent Adjustable Soldering Irons, to which they refer as having given perfect satisfaction. As will be seen from the cuts, the copper point is pivoted on the handle, which allows it to be readily adjusted to any angle, thus avoiding the trouble of heating and bending the handle, as if often necessary with the old style in difficult jobs of soldering and plumbing. Another advantage connected with their use is also mentioned—that when the handles have been purchased it is only necessary to replace the coppers, which are detachable and can readily be removed and others substituted. These Soldering Irons are sold from the following list, which is subject to a discount of 60 and 20 per cent. :

Adjustable Soldering Iron.

List Nos.	Per doz.
350, Iron with ¾-inch Copper	$11.50
352, Iron with ⅞-inch Copper	13.50
354, Iron with 1-inch Copper	16.50
356, Iron with 1¼-inch Copper	19.50
358, Iron with 1¼-inch Copper	23.50
Adjustable Coppers.	
380, ¾-inch Copper	7.20
382, ⅞-inch Copper	9.00
384, 1-inch Copper	11.50
386, 1¼-inch Copper	13.50
388, 1¼-inch Copper	16.00

McCaffrey & Brother, the Pennsylvania File Works, Philadelphia, announce that on and after September 1 their Horse Rasps ¼ File will be the same list as regular No change in discount is made.

ITEMS.

The Yale & Towne Mfg. Co., Stamford, Conn., and 62 Reade street, New York, issue a number of supplementary pages for their catalogue, illustrating goods which they have recently added to their line. They cover Real Bronze or Brass Door Knobs, Finger Plates, Locks, Extension Bolts, Closet Knobs and Bell Pulls, Sash Lifts and other goods.

In their advertisement on page 20 John P. Lovell's Sons, Boston, Mass., call attention to some of the specialties of their manufacture, including Roller Skates, Bean's Patent Police Equipments, the Champion Single Breech-Loading Gun, and Lovell's Double-Action Self-Ejecting Revolver, the special features of all of which are indicated in the illustrations given.

The F. F. Adams Company, Erie, Pa., request us to announce that they have appointed T. P. Burke & Co., 100 Chambers street, New York, selling agents for the New York City, export and Southern trade. They are salaried agents and will at all times be able to name bottom prices.

Harrington & Richardson, Worcester, Mass., illustrate on page 20 their new Shell Ejecting Double-Action Revolver, the special features of which are represented in the cut. It is made 32 and 38 caliber, central fire, nickel-plated, with rubber stock.

Edwin Hunt's Sons, Chicago, send out a price current referring to Tin Plate and Metals, Stove Boards, Elbows, Dampers, Fire Shovels, Coal Hods, &c., and other specialties. Lists on most of these goods are given, the discounts being left blank. It bears date August 18, and is prefaced by the following remarks concerning trade :

The feature of trade for the last month has been an unusually large demand for Farming Tools, indicating good crops of hay and small grains. Some varieties of Hay Forks especially it has been impossible to obtain in sufficient quantity for immediate requirement. The volume of business has for some months been up to the average of preceding years, with indications that this will be maintained, if not exceeded, during the coming season. Prices on leading goods are in the main stationary at their present low range ; fluctuations, of course, may be expected, but this implies advances as well as declines ; the tendency is no longer strongly in one direction. Steel Nails are scarce, with no prospect of a better supply in the immediate future. Iron Nails, on the other hand, can be obtained without difficulty, although many of them are of brands not usually seen in this market. Tin Plates are firmer, although no advance has yet been established. Solder, however, necessarily advanced with the material rise in price of its components. We call the attention of tinners and stove dealers to our Embossed Sheet Iron, a striking novelty, destined to supersede to a great extent both Planished and Russia for fine Stove Pipe. It is rolled from smooth tough Iron in a beautiful pattern, and when blacked in the usual manner is exceedingly attractive. It comes in bundles of the usual size, 24 x 101 inches. We offer also Embossed Elbows of the same material. Copper Rivets and Burs, in half-pound boxes, assorted ⅜ to ¾ inch ; Nos. 8, 9, 10 can now be had in any desired quantities ; we were the first to introduce the goods in this form, so popular with the trade. Dixon's Stove Polish will henceforth be supplied in larger packages than heretofore without extra charge. The weight of the "cake" is now 7 ounces, against a former weight of 4 ounces.

The Black Hardware Company, Detroit, Mich., announce that their terms hereafter will be as follows : Regular goods, 60 days, less 2 per cent. for cash in 10 days ; and cash goods, 30 days, less 1 per cent. for cash in 10 days.

In their advertisement on page 24 J. Stevens & Co., Chicopee Falls, Mass., refer in an interesting way to their line of Stevens' Rifles, of which descriptions are given, with other information and testimonials regarding the goods. Attention is also called to the fact that Wiebusch & Hilger, 84 and 86 Chambers street, New York, are general agents, Charles Fulsom having associated himself with this house.

The Canastota Knife Company, Canastota, N. Y., are issuing a catalogue of their Pocket Cutlery, in which the goods represented are illustrated with full-sized cuts. In their introductory remarks they refer to their effort to secure excellence in quality, and to their having the services of the best skilled workmen for the forging, tempering and grinding. Attention is also called to the fact that the blades are forged by hand, experience indicating to the company that only in this way the best blades can be procured.

The Newark Machine Company, Columbus, Ohio, it is stated, have entered suit in the United States courts against Gaar, Scott & Co., of Richmond, Ind., for the use of certain patents upon the Clover Huller manufactured by the latter, which the Newark Machine Company claim to be infringements on their patents on the Victor Clover Huller manufactured by them.

The Niagara Stamping and Tool Company, Buffalo, N. Y., are removing their works and office from their former location to their new factory at the corner of Superior and Randall streets, where they will have materially increased facilities.

W. C. Kelly & Co., Louisville, Ky., advise us that they have appointed T. P. Burke & Co., 100 Chambers street, New York, their general agents for the sale of their Axes, Hatchets, &c , and that they will be prepared at all times to name the bottom prices, and will have on hand at their office a line of samples.

Buell Bros.' Screw-Drivers in sets, manufactured under the name of Giant Hollow Handles, are illustrated and described in an advertisment on page 41. They are made of rosewood, finely finished and with nickel-plated brass mountings. For the Screw-Drivers and other small Tools contained in these Handles the manufacturers make some remarkable claims, especially in the matter of the temper of the Steel, which they guarantee superior to any temper ever before attained. One of these Driver Blades is said to cut Iron with the facility of a Cold Chisel, and a $\frac{7}{16}$-inch Driver is warranted to split open the head of a 3 inch Screw in hardwood, without itself suffering injury. Notwithstanding these remarkable qualities, however, their Screw-Drivers are easily sharpened by filing. Claims so apparently contradictory are certainly surprising, but we are fully authorized to make them on the manufacturers' authority. The Drivers are made for use in Braces as well as in the Handles in which they come.

Coal Market.

There is more demand for Anthracite Coal this week, some of the companies being able to show new orders in considerable amount, but generally business is dull. It is also to be noticed that the improvement, though small, it may be, is chiefly for the manufacturing sizes. In regard to prices the market is completely broken down, so that circulars as an index are absolutely worthless, because misleading. It is notorious that Coal for some time past has been selling below the recent pretended reduction, the change of figures being rather for the sake of consistency than anything else. Just now the leading producers are loth to name any price whatever as an indication of the general market. The only rule, in fact, is "go as you please," but we may quote Stove Coal, the leading size, at about $3.50, f.o.b. Special Lehigh varieties are in some instances short of the demand, but, as a whole, the market has seldom, if ever, been so much burdened with excessive production. In face of this fact mining operators cannot agree upon a plan of restriction. Some of them openly avow freedom in this matter from all restraint. A reduction of 20¢ ℔ ton in tolls inures to the benefit of shippers rather than consumers. Prospects still favor a larger control of the trade by the Pennsylvania Railway Company, which for some months past has been virtually outlawed by its former associates, and whose position with reference to future railway extension and consequent enlargement of resources is an ineffectual bar to co-operation such as others might desire. The Reading officials are of the opinion that there will be no restriction at the mines during the present month. Bituminous Coal shares in the general demoralization and is without change.

Baltimore.

W. N. WYETH, Iron and Steel Merchant, 46 and 48 South Charles street, reports us the following, under date of August 31, 1885 : No new feature has developed here in the Iron market since our last report. Trade remains in about the same condition as then stated—quiet and disappointing. The business doing is confined to small lots, chiefly for immediate use. We quote the list unchanged per annexed figures :

Ref. Bar Iron, 1 to 6 x ⅜ to 1	℔	1¾ @	1 8-10¢
" " 1 to 4½ x 1½ to 1	℔	1¾ @	1 8-10¢
" " ¾ to 2, Round and Square	℔	1¾ @	1 8-10¢
Hoop Iron, 1½ wide and upward	"	2½ @	2¾ ¢
Band Iron, from 1½ to 6 in. wide	"	2¼ @	2½ ¢
Horse-shoe Iron	"	3¼ @	3 ¢
Norway Nail Rods	"	5 @	5¼ ¢
Black Diamond Cast Steel	"	9 @	10 ¢
Machinery Steel	"	3½ @	4¼ ¢
Spring Steel	"	3¾ @	4 ¢
Common Horse Nails	"	8 @	9 ¢
Railroad Spikes, 5½ x 9-16	"	2 @	2¼ ¢
Perkins's Horse Shoes, ℔ keg of 100 ℔			$3.72½
" Mule Shoes			4.72½

Detroit.

CHARLES HIMROD & Co., dealers in Pig Iron, Detroit, Mich., report, under date of August 31, 1885, as follows : During the past week a few large orders have been taken and more than the usual number of small ones. Several offers for large lots of Ohio Irons for delivery after the 1st of January, and several offers for immediate delivery of Charcoal Iron, at former prices have been refused by the furnaces. From the number of inquiries received, the feeling among buyers seems to be that prices are likely to advance, or, at any rate, will go no lower. The price on mixed lots of Iron is a little higher. We also note advance on Charcoal and Ohio Blackband Irons. For round lots on four months' time we present the following :

Lake Superior Charcoal, Nos. 1, 2 and 3	$19.50 @ $20.00
Lake Superior Charcoal, Nos. 4, 5 and 6	20.00 @ 21.00
Lake Superior Coke, All Ore	18.25 @ 18.75
Lake Superior Coke, Cinder Mixed	16.75 @ 17.00
Standard Ohio Blackband	18.75 @ 19.25
Southern No. 2	16.75 @ 17.00
Southern Silvery, Open	16.50 @ .....
Southern Silvery, Close	16.00 @ .....
Jackson Co. (Ohio) Silvery	18.00 @ 18.25
No. 1 Southern Mill	14.00 @ 14.50
Old American Rails, Iron	17.50 @ 18.50
Old Wheels	14.00 @ 15.00

Imports and Exports.

IMPORTS.

The following were the Imports of Hardware, Iron, Steel and Metals into the Port of New York for the week ending Sept. 1, 1885 :

Hardware.

Am. Meter Co. Case, 1
Baldwin Bros. & Co. Gun barrels, cs., 6
Boker Hermann & Co. Hdw., cutlery and guns, pkgs., 51
Burkinshaw W. C. Cases, 2
Coombs, Crosby & Eddy, Rifles, case, 1
Curley J. J. & Bro Cutlery, case, 1
Dougan Alex. & Co. Packages, 12
Emerson, Rhodes & Co. Cases, 6
European-Am. Exp. Co. Boilers, case, 1
Folsom H. & D. Arms, cs., 10
Field Alfred & Co. Gun barrels, cs., 10 Cases, 2
Gerdau Otto. Bundles, 203 Bales, 7 Mdse, cs., 89
Goodwin & Sturridge, Machinery, cs., 2 Tools, case, 1
Great West. Disp. Co. Mach'y, pkgs., 99
Hartley & Graham, Arms, cs., 9
Homer & Smith, Cases, 10
Junge F. W. & Co. Mdse., case, 1
Levi Bros. Cases, 7
Lydecker & Kennedy, Case, 1
McCoy & Sanders, Chains, cs., 11 Mdse., cs., 5
McLea, Austin & Co. Cases, 3
Morrison, Herriman & Co. Cases, 13
Pa. R. R. Co. Case, 1
Riesthal A. de & Co. Nails, cs., 31
Stieglich & Baere, Case, 1
Schoverling, Daly & Gales, Arms, cs., 30 Cases, 17
Stoddard, Lovering & Co. Mach'y, cs., 21
Struller, Lau & Co. Arms, cs., 10 Cases, 5
Thurnauer G. M. Ironware, cs., 4
Taylor Thos. Cases, 9
Ward J. O. & Son, Mach'y, cs., 3
Wiebusch, Hilger, & Co Hdw., cutlery and guns, pkgs., 23
Order, Mach'y, pkgs., 12 Nails, bxs., 20 Packages, 50

Iron.

Alexandre F. & Sons, Iron tubes, 36
Baltzer & Lichtenstein, Rods, pkgs., 258
Baring Bros. & Co. Wire rods, coils, 3010 Bars, 764
Coddington T. B. & Co. Sheets, bdls., 583
Colwell Iron Works, Defecator bottom, 1
Crocker Bros. Spiegeleisen, tons, 101 Ferro iron, cks., 89
Haynes C. A. Castings, 5 Castings, cs., 3
Herman Thos. Plates, 54 Sheets, bdls., 100 Sheets galv., bdls, 36
Mason John W. & Co. Wire rope, coils, 14
Naylor & Co. Cotton ties, bdls., 8800 Rivet rods, coils, 124 Bars, 1512 Bundles, 18 Wire, bdls., 132
Pim, Forwood & Co. Sheets, cs., 18
Stetson Geo. W. Pig, tons, 250
Order, Spiegeleisen, tons, 420 Rods, 9576

Steel.

Abbott Jere & Co. Cases, 14
Boker C. F. Mdse., case, 1 Bundles, 10 Bars, 10 Casks, 4
Downing R. F. Bundles, 325
Mayer, Strouss & Co., Casks, 39
Naylor & Co. Tires, 21 Rods, bdls., 10,573
Pilditch F. S. Packages, 266
Power C. W. & Co. Cases, 6
Rawlins G. E. Packages, 27
Sellers W. B. Case, 1
Temple & Lockwood, Packages, 27
Tomlinson Spring Co. Packages, 81
Wagner, W. F. Bundles, 215 Bars, 20 Cases, 10 Plates, 18
Order, Coiled steel, bdls., 283 Bands, 120 Packages, 157

Metals.

Am. Meter Co. Tin plates, bxs., 25
Bruce & Cook. Tin plates, bxs., 3312
Canadian Bank of Com. Tin plates, bxs., 1700
Central Stamping Co. Tin plates, bxs , 165
Crooks Robert. Tin plates, bxs., 725
Dickerson, Van Duzen & Co. Tin plates, bxs., 2553
Erie and Great Western Dispatch, Tin plates, bxs., 30
Field, Alfred & Co., Gun caps, cs., 33
Gt. West. Disp. Tin plates, bxs., 307
Jimenes, Hanstedt & Co. Copper, pkgs., 16
Leaycraft & Co. Bross, bbl., 1
Moore's Sons J. P. Gun caps, &c., cs., 11
Naylor & Co. Tin plates, bxs., 9638 Tin ingots, 274 Plates spelter, 4588
Phelps, Dodge & Co. Tin plates, bxs., 9267 Black tagg's, bxs., 60 Antimony, cks , 50
Reid John, Baths, sinks, &c., pkgs., 71
Willett & Hawlin. Y.m.sheath'g, cs., 50
Witteman Bros. Tin, cs., 20
Order, Tin plates, boxes, 20,415 Tin plates and taggers, 758 Tin slabs, 542

The imports of Hardware, Cutlery and Metals at this port during the week ended August 28 were as follows :

	Quantity.	Value.
Brass goods	38	2,598
Bronzes	47	4,655
Chains and anchors	28	1,618
Copper	....	107
Cutlery	84	17,898
Clocks	5	261
Guns	125	19,070
Hardware	12	1,000
Iron, pig, tons	1,843	29,202
Iron, sheet, tons	25	2,078
Iron ore, tons	1,340	2,974
Iron cotton ties	26,400	18,175
Iron, other, tons	732	29,675
Machinery	39	11,431
Metal goods	479	51,096
Nails	4	384
Needles	11	4,850
Old metal	....	125
Platina	1	1,187
Plated ware	3	258
Pins	5	325
Saddlery	6	1,166
Steel	14,540	14,864
Tin, boxes	14,497	53,904
Tin, 285 slabs ; ℔	21,864	4,623
Wire	195	294
Zinc	55,125	1,863
Zinc oxide	52	533

The comparison for two years since January 1 is as follows :

	35 weeks of 1885.	Same time 1884.
Cutlery, pkgs	2,930	3,517
Hardware, pkgs	429	522
Iron, R. R., bars	....	9,422
Lead, pigs	33,314	27,141
Steel, pkgs	1,460,128	1,350,173
Tin, bxs	1,274,296	1,329,728
Tin slabs, ℔	12,348,302	13,564,890

EXPORTS.

The following list embraces the Exports of Hardware, Machinery, Iron, Metals, &c., from the Port of New York, for the week ending September 1, 1885 :

	Quan.	Val.
Bremen.		
Mach'y, pkgs.	2	$500
Hdw., cs	6	549
Ag.imp., pkgs	5	325
Rotterdam.		
Hdw., cs	14	214
Copper, casks	29	5,138
Wringers, cs.	14	275
Ag. imp., pkgs	2	300
Amsterdam.		
Hdw., cs	6	76
Dutch West Indies.		
Hdw., pkgs	6	61
Pumps, pkgs.	2	14
Nails, bxs	4	53
Mach'y, pkgs.	2	274
Hamburg.		
Mach'y, pkgs.	13	987
Hdw., pkgs	159	2,256
Ag.imp., pkgs.	127	1,110
Copper, casks	11	2,504
Copper matte, cks	319	10,500
Guns, cs	2	120
Firearms, cs.	4	423
Mf. iron, pkgs	97	2,036
Clocks, pkgs	130	1,757
Sew. ma., cs.	128	5,950
Print. press, pkgs	2	25
Copper bars	1,334	7,450
Saws, case	1	61
Antwerp.		
Sew. ma., cs.	13	228
Ag. imp., pkgs	5	590
Hull.		
Hdw., cs	41	571
Glasgow.		
Mach'y, pkgs.	9	1,392
W'dmills, pgs	8	387
Ag.imp., pkgs.	7	255
Hdw., pkgs	10	155
Scales, cs	3	45
Pumps, pkge.	1	30
Sew. ma., cs.	265	6,339
Water wheel	1	425
Liverpool.		
Copper matte bags	11,254	63,300
Mf. iron, pkgs	3	50
Copper, cakes	444	6,755
Pumps, pkge.	1	63
Shears, case	1	300
Rifles, cs	7	579
Cop. matte, bags	4,320	23,800
Sew. ma., cs.	136	2,313
Windmills, pgs	35	1,199
Agateware, cs	5	72
Copper pigs	1,337	33,600
Mf. iron, pkgs	8	110
Tinware, cs	2	68
Steel shells, case	1	125
Mach'y, pkgs	42	3,234
Air guns, cs	4	157
Clocks, cs	214	5,305
H'w, pkgs	265	9,929
Ag. imp., pkgs	11	463
Copper, casks	247	22,054
Cutlery, cs	3	338
Graniteware, cs	5	194
Scales, cs	20	330
S. rollers, cs.	115	260
Havre.		
Copper, cks	197	28,032
Clocks, cs	3	62
Hdw., case	1	32
Ag. imp., pkgs	5	275
Sew. ma., cs.	125	4,075
Pumps, pkgs.	11	550
Mach'y, pkgs.	2	300
London.		
Sew. ma., cs.	105	3,404
Iron drums	57	570
Ag. imp., pkge	1	60
Hdw., pkgs	58	1,049
Metal lace, cs.	4	999
Nails, kegs	10	120
Revolvers, case	1	1,773
Clocks, pkgs.	67	860
Mach'y, pkgs.	46	3,666
Mf. iron, pkgs	5	240
Wringers, cs.	2	68
Pumps, pkge.	1	14
Br. goods, case	1	62
Iron safe	1	50
Cartridges, cs.	57	1,101
Primers, case	1	30
Rifles, cs	3	56
Canada.		
Rifles, case	1	165
Newfoundland.		
Hdw., pkgs	16	229
Firearms, case	1	126
Lead, roll	1	68
Mf. iron, pkgs	28	275
Cartridges, case	1	40
B. goods, case	1	27
British East Indies.		
Iron tanks	50	750
British Australia.		
Hdw., pkgs	432	8,972
Saws, cs	9	487
Clocks, pkgs.	132	3,080
Ag.imp., pkgs	149	781
Mf. iron, pkgs	71	733
Air guns, case	1	86
Wire g'ds, cs.	6	95
Nails, cs	23	314
Cartridges, cs	4	110
Firearms, cs.	2	119
Tacks, cs	8	126
Mach'y, pkgs.	7	914
Pumps, pkgs.	38	2,632
Perc. caps, cs	2	25
New Brunswick.		
Mf. iron, pkgs	2	25
British West Indies.		
Nails, kegs	74	199
Hdw., pkgs	3	17
Zinc, cask	1	20
Mf. iron, pkgs	18	199
Hdw., pkgs	27	300
Pumps pkgs.	4	50
Tinware, cs.	7	85
Ag.imp., pkgs.	4	56
Sew. ma., case	1	20
Firearms, cs.	3	188
Clocks, pkgs.	15	281
Nails, case	1	18
Nova Scotia.		
Pumps, pkgs.	12	294
Empty shells, cs	2	57
Mf. iron, pkgs	167	115
Hdw., cs	9	362
Revolvers, cse	1	40
Clocks, pkgs.	24	331
Tin plate, bxs	7	81
Per. caps, cs.	2	76
Kitchen-ware, bdls.	34	43
Cuba.		
Cutlery, cs	79	2,357
Nails, kegs	340	903
Hdw., pkgs.	112	2,100
Mf. iron, pkgs	613	3,472
Saws, cs	6	787
Ag.imp., pkgs.	14	111
M. dust, bbls.	20	60
Mach'y, pkgs.	389	7,847
Gas meters, cs	7	400
Nails, cs	13	107
Sew. ma., cs.	51	670
Iron, pkgs	120	137
Steel rails	400	1,493
Clocks, case	1	75
Tinware, pkgs	11	261
Babbit metal, case	1	25
Boilers	6	9,095
Spikes, kegs	315	680
Copper plates	3	115
Pumps, pkgs.	5	307
Car wheels	200	1,347
Wire, coils	100	460
Saw mill	1	2,000
Mossina.		
ocks, cs	3	69
Hayti.		
Hdw., pkgs	8	69
Scales, cs	3	89
Nails, kegs	51	127
Mach'y, pkgs.	14	400
Pump	1	20
Palermo.		
Pumps, pkge.	1	65
Iron safe	1	75
Venice		
Clocks, bxs	9	896
Mexico.		
Mach'y, pkgs.	4	100
Steel, bdls	25	158
Hdw., pkgs	23	319
Nails, kegs	45	101
Wat. closets	6	28
Wringers, cse	1	15
Lathe	1	364
Nails, kegs	5	23
Mf. iron, pkgs	240	918
Ag.imp., pkgs.	2	26
French West Indies.		
Sew. ma., cs.	5	161
Venezuela		
Wire gds., cs.	3	40
Hdw., cs	6	89
Tinware, cs	2	55
Sew. ma., cs.	20	438
Nails, cs	6	55
Clocks, case	1	35
Salonica.		
Mf. iron, pkge.	1	10
United States of Colombia.		
Mach'y, pkgs.	227	4,406
Cartridges, cs	306	5,288
Nails, kegs	166	510
Brass gds., cs.	4	234
Iron, pkgs	111	5,139
Firearms, cs.	2	311
Wheels and a., pairs	6	240
Tacks, cs	5	87
Lead pipe, bxs	3	122
Locomotive	1	4,215
Steel, pkgs	22	383
Clocks, cs	2	51
Hdw., pkgs	66	1,312
Mf. iron, pkgs.	242	2,368
Sew. ma., cs.	12	238
Cutlery, cs	9	569
Y. metal, case	1	84
Ag.imp., pkgs	3	44
Tinware, pkgs	10	239
Saws, cs	2	44
Spikes, kegs	100	262
Naples.		
Hdw., cs	64	2,306
Genoa.		
Hdw., cs	9	137
Guns, cs	48	9,000
Ag.imp., pkge	1	11
Argentine Republic.		
Ag.imp., pkgs.	2250	48,096
Pumps, pkgs.	14	225
Hdw., cs	15	192
Scales, cs	60	151
Sad irons, cks	80	1,379
Brazil.		
Scales, case	1	25
Mach'y, pkge.	1	100
Clocks, pkgs.	43	863
Cartridges, cs.	8	122
Ag. imp., pkgs	5	24
Nails, kegs	110	253
Whls. on axls., pairs	3	240
Mf. iron, pkgs.	15	405
Hdw., pkgs	57	1,166
Guns, case	1	99
Kitchenw'e, cs	12	260
Shears, case	1	153
Revolvers, case	1	90
Chili		
Saws, case	1	46
Mach'y, pkgs.	63	2,930
Mf. iron, pkgs	130	1,331
Clocks, pkgs.	25	413
Nails, cs	5	41
Iron safes	8	515
Tinfoil, cs	2	62
Ag. imp., pkgs	144	1,180
Nails, kegs	1500	3,600
Hdw., pkgs	261	3,164
Lances, case	1	150

Investigations as to the amount of lost work in many establishments would no doubt yield results alike interesting and instructive, and show that the importance of the subject, however much attention may have been called to it, is still very often but imperfectly appreciated. That the power required to overcome friction in the running of machinery is a source of continuous expense, that this lasts as long as the machine is actively employed, and that an increased first cost in the careful arrangement of plant and the selection of economical machinery will almost always prove a good investment, are truths with which many manufacturers have not yet become impressed. To such, only practical demonstrations of the shortcomings of badly designed and arranged plants are convincing and capable of inducing reconstruction and general overhauling. Those who have undertaken the study of the subject for the purpose of making the information of practical value have invariably found that the construction of machinery with a view of limiting the frictional resistance to a minimum has amply repaid their labors.

A number of iron mill owners in Covington, Ky., are arranging to bore for gas, saying it will be impossible to compete with Pittsburgh unless a supply of gas for fuel can be secured there. The Hemingway Glass Company recently bored down 2000 feet in the hope of finding gas, but failed. A vein of Blue Lick water was first struck, which throws out about 25,000 gallons a day, and since this flow began the famous Blue Lick Springs of Kentucky, 100 miles distant, which have been a resort for invalids for two generations, have partly dried up.

The Harvey Rolled Wood Screw.

The fact that wood screws have been manufactured by rolling is one generally known to the trade in this country, and those who have used rolled screws have testified to their superior excellence. It is also known that they are practical screws, possessing certain advantages over screws with cut threads. It has been reported that their manufacture would be undertaken on a large scale, but as this was not done we presume the matter has passed out of the minds of those for whom the subject has special interest. The facts we give below will, we are sure, be found of general trade interest.

The first exhibition of the Harvey screw-threading machine was made at the International Inventions Exhibition in London, where it was awarded the gold medal. This machine and its product excited great interest, and, as it is an American machine in every particular, a few extracts from comments in recent issues of leading English journals will be read with satisfaction. *Engineering* of August 21 says:

"A very ingenious, and at the same time exceedingly simple, machine for the manufacture of wood screws is shown in the western gallery of the Inventions Exhibition. It differs from all existing machines for the same purpose in that the threads are not cut, but rolled—that is, the wire blank is pressed into the final form without loss of material, the fibers being squeezed into the alternate projections and depressions of the screw-thread. From this apparently simple alteration in the mode of manufacture there result a great many advantages. Firstly, there is a considerable saving of metal, 1 ton of wire serving to make 1800 gross of No. 10 rolled screws, 1¼ inches long, while it will only produce 1066 gross of cut screws. Secondly, the threads stand out beyond the original diameter of the wire, and consequently beyond the shank; hence it is not necessary to send a second bit down the hole in the wood to enlarge the part intended for the reception of the shank. Indeed, in many instances no hole is required, for the 'gimlet point' actually answers to its name, and will lead forward without any preliminary assistance. We have seen one 1¼-inch screw put by a screw-driver into a solid block of beech right up to the head without difficulty. Thirdly, the threads are stronger for the rolling process, the fibers being merely bent, and not cut, as in the ordinary screw. This may not be regarded as a very important point, as wood always strips before the screw which holds it. But when the Harvey screw is employed, the holding power of the threads in the timber is increased, as they extend the whole depth of the hole, and are not destroyed at the mouth by the pressure of the shank. A fourth advantage is that there is a saving of 15 per cent. in the cost of production. It is impossible to watch the machine without becoming impressed with its great merit. It turns out its work with marvelous rapidity, and produces a screw which is cheap to buy, easy to insert, and which is distinctly superior in many respects to those already in the market."

Iron of the same date says:

"Not only does this machine claim attention as a novelty, but in a far greater degree as one of the most simple, ingenious and effective pieces of mechanism of its class we have ever seen. The machine is not a large one, but it gets through a great amount of work in a very short time. The screw-threads are formed by rolling the blanks between two metallic surfaces, both cut so as to form dies which produce the thread. This is effected without cutting or waste, and, in the machine we saw operated, at the rate of a gross, or 144 screws, per minute. The screw thus formed is found to possess many advantages over the ordinary screw with the cut thread. These advantages, besides being apparent on the face of it, are admitted by experts who have thoroughly tested the Harvey screw. In the first place, it has a true gimlet point, drawing the screw into the wood in a straight course, and doing away almost entirely with the use of the gimlet. The thread is found to be much stronger, the metal being rolled up and compressed. In the ordinary screw at present in use the fiber is cut and thereby weakened. Another point of great value is that the neck of the Harvey screw is of smaller diameter than the thread, whereas, in the ordinary screw, the neck is larger than the thread, necessitating in hardwood the use of two gimlets to avoid splitting. The extent and importance of the screw trade are hardly known, but they will be understood when we mention that in England alone Screws to be used in wood are made to the number of 130,000 gross per day. The Harvey machine will make 1800 gross of No. 10 1¼-inch screws from 1 ton of wire, whereas the old system produces only 1066 gross, showing a loss by the latter of 734 gross in 1 ton of wire. We understand that Messrs. Ladd & Co. intend putting down a plant for the manufacture of these screws, which will have sufficent capacity for meeting the entire demand of the trade. The screw-threading machine recently formed the subject of special inspection by a party of gentlemen interested in the production and use of screws and bolts, and its working elicited from them expressions of unqualified approval, which we unhesitatingly indorse. It is almost superfluous for us to add that the gold medal of the exhibition was awarded to this ingenious invention. It would have been strange had it been otherwise."

The *Architect*, speaking of this machine, says:

"The Harvey machine differs from the old system in this respect, that, whereas the latter cuts the blank to form the thread (causing a great waste of metal), in this new machine the threads are rolled by compression. It is a small and exceedingly simple machine. By the old system 1066 gross of 1¼-inch No. 10 screws could be made from 1 ton of wire, at the rate of 15 screws a minute per machine; whereas the Harvey machine has an outturn of 1800 gross, at the rate of 1 gross per minute, thus effecting a saving of 734 gross in 1 ton of wire, and doing the work of 10 machines of the old method. The screws made by the Harvey machine possess the following advantages: It has a true gimlet point, thus drawing the screw into the wood in a straight course, and doing away almost entirely with the use of a gimlet. The thread is found to be much stronger, the metal being rolled up and compressed. In the ordinary screw at present in use the fiber is cut, and thereby weakened. Another point of great value is that the neck of the Harvey screw is of smaller diameter than the thread, whereas in the ordinary screw the neck is larger than the thread, necessitating in hardwood the use of two gimlets, to avoid splitting."

The London *Morning Advertiser*, of August 19, says:

"The Harvey patent screw and bolt threading machine is exhibited at No. 1144, in the west gallery, at a stand which occupies an area of only a few square feet, but it turns out a prodigious quantity of work in a given time, and it is claimed for its results that they are in every respect superior to those produced by any existing machinery having the same object in view—the manufacture of the common screw. The process of manufacture hitherto adopted consists in cutting the thread out of the solid blank, and it is objected to this that there is a waste of material, and that the metallic fiber is weakened. A further objection has reference to the form given to the article. The thread is cut on a conical surface, which is continued from the end of the thread to the head of the instrument, into which the screw-driver is inserted. The shank of the screw thus acts as a wedge with a very small angle, which consequently has a strong tendency to rend the material into which it is forced. The Harvey machine, accordingly, is not a screw cutter, but a screw roller. It does not cut the screw out of the solid metal, but rolls the solid metal into the required form, and delivers the article in its finished state, free from the imperfections to which reference has been made. The machine exhibited yesterday turns out its work at the rate of a gross per minute, which, we were informed, is much greater than under the ordinary methods of production. The Harvey machine will make 1800 gross of No. 10 1¼-inch screws from 1 ton of wire, whereas the old system produces only 1066 gross, showing a loss by the latter of 734 gross in 1 ton of wire. During several hours' trial of the machine it worked most satisfactorily, and received the approval of several practical men who were among the numerous body of spectators who watched the working of it."

The London *Morning Post* of the 20th says that the Harvey machine "is invariably surrounded by a crowd watching with amused interest the simple operations which it goes through with almost human sagacity. It is not a large machine, but it does an amazing amount of work, turning out about 144 screws a minute. This screw has a true gimlet point, driving into the wood in a straight course, thereby doing away almost entirely with the use of the gimlet. The same machine threads iron and steel bolts equally as well as screws for wood."

The influence which the Harvey machine is likely to exert in the American screw trade is admittedly great. The invention is the product of many years of thought and experiment, and the various parts of the machine, with the processes and the product, are the subject of about 25 American patents properly duplicated in Great Britain and on the Continent of Europe. The inventor, Mr. Hayward A. Harvey, of Orange, N. J., has been all his life identified with the screw business. His father, Gen. Thomas W. Harvey, was the inventor of the automatic screw-cutting machines, the principles of which gave to the American Screw Company their long and lucrative monopoly of the wood screw business of this country. Mr. H. A. Harvey has contributed largely to the growth of the screw-cutting industry, having taken out over 30 patents relating to screw-cutting before he turned his attention to the rolling process. In fact, it may safely be said that there is not a screw machine in the world that does not embody some invention of one of the Harveys, father or son. Briefly described, the Harvey process consists in rolling, pressing or molding the screw-thread partly into, partly up from, the screw-blank, in contradistinction to the old processs, in which the thread is formed by cutting into the metal of the blank. This is accomplished by rolling the blanks between two dies—one rotating, the other stationary, and each having on its surface grooves corresponding to the screw-threads. These grooves form the thread progressively on the blank, and the sharp, well-centered gimlet point is formed in the same operation. The machine itself is no less interesting than the process and the product, being full of remarkably ingenious automatic contrivances. We hope soon to give a detailed description of it, with drawings.

It is well known that every cutting tool begins to deteriorate as soon as it comes into use. Especially in working metal is the first product of the cutting tool the best product. The succeeding products depreciate steadily, owing to the wear of the cutting tool. This is such a fixed and recognized fact that in the making screws by the cutting process it is absolutely necessary to employ a large force of "assorters" to separate the screws of first quality from the "seconds." In the Harvey rolling process there is an instrument which does not deteriorate so as to affect the quality of the product. If one thread on the roll fails to do its duty, a score of following threads stand ready to remedy the defect as the screw proceeds to its finish. The operation of "assorting" is reduced to a minimum—in fact, the number of "seconds" made is barely appreciable. In the Harvey machines dies have been used constantly for more than a year without visible deterioration.

In regard to rapidity of production, one Harvey machine will produce 150 1½-inch No. 13 screws per minute, against six or seven screws made in a cutting machine, the two machines being of about the same cost.

The economy of rolling is important. The entire waste from cutting (about 25 %) is obviated. In fact, there is no waste except that in the preliminary processes of heading, shaving and nicking. The rolling process goes even further than this. A cut screw can evidently have a thread of no larger diameter than the wire of which it is made. The thread of the rolled screw is larger than the diameter of the wire, showing a gain in size on the screw list of two to four numbers. For example, No. 13 screws are made out of No. 10 screw wire. In brief, there is a gain of 25 per cent. in selling price, and the raising of the thread pays for the wire. The heads of the screws are brought up to correspond to the gauge of the thread.

The product is one which is in every respect satisfactory. The gimlet point is sharp and perfect and readily enters the wood without preliminary boring. The thread is deep and has a gradually increased holding power, as many experiments have shown. The neck being of less diameter than the thread is an important advantage. The splitting of wood and the bursting of the head so common in driving screws into hardwood is entirely obviated. The neck will follow without resistance the opening made by the thread. Objection is sometimes made that the neck does not completely filll the hole bored for the screw. The answer to this is that if a hole is bored at all it should be no larger than the neck, thus insuring the hold of the thread. If no hole is bored the fibers displaced by the thread will close in around the neck. This, however, is a matter of no consequence. The hold of a screw depends wholly upon the thread and head, and so long as the neck has the full strength of the blank it is strong enough. A diameter of neck equal to the gauge of the thread is excessive. Theoretically it should be no larger than the core of the threaded part of the screw, since if it be larger it must offer considerable resistance to the tendency of the thread when the screw is turned to draw the neck into the hole made for it. Many years ago attempts were made to improve cut screws by turning down the necks to the gauge of the cores. The improvement was obvious, but the cost of the operation was so great that it was impracticable. Had it been possible to do this without materially increasing the cost of manufacture, all cut screws would now be made with necks as much smaller than the gauge of the thread as is shown in the product of the rolling process. It is probable that before very long the manufacture of rolled screws will be established in this country on an extensive scale.

The Louisville Exhibition.

A correspondent in Louisville sends us the following:

The Southern Exposition has opened with very bright prospects. Financial success is considered assured. The very energetic manager, Mr. J. M. Wright, has brought together a wonderful collection of exhibits from all parts of the world. The foreign representatives have been given the most prominent places, and the most attractive displays are so arranged that one is obliged to go over the vast building and see everything to avoid missing something important. For instance, the Pe Kong Tea Company's villa, where every one goes to get a refreshing cup of tea, waited on by Chinese, and walks among real tea plants, is situated in the midst of the machinery and agricultural department. The foreknowledge of this arrangement is proved by the marked interest of the crowds in works that never interested them before, simply because they were considered, through ignorance, without interest.

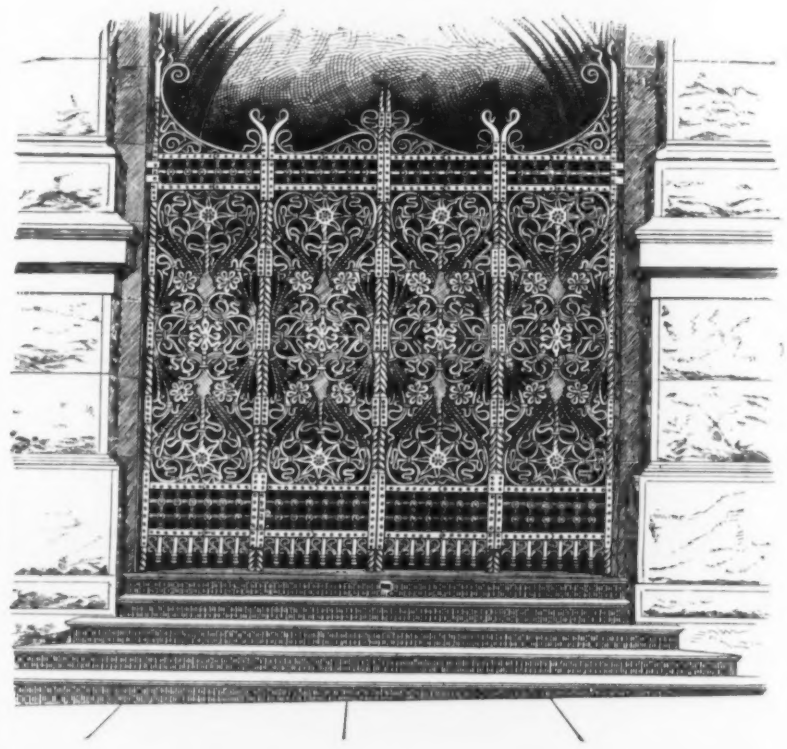
The handsomest display of stoves ever made in the West is that of Messrs. Bridgeford & Co., of this city. They have a very large assortment and full line of stoves and ranges of all kinds, well finished and in excellent order, in the midst of which stands a monster heating stove, the "Triumph," about 8 feet high. Probably the two most perfect pieces of stove casting in the United States are in one end of their exhibit on the main aisle. One is the "Royal American" range, a large and perfect stove, nickel-plated entire, and so perfectly done as to have the appearance of burnished silver. Its spotless brilliancy is almost dazzling, and well deserves the name of "Royal." The other is a heating stove of a new design, and certainly is of new and exquisite workmanship. Beautiful designs of birds and flowers are perfectly represented in the cast iron, but this, too, is nickel-plated and idealized, with brass rods and a bronzed figure on the top, which add harmony to the whole. Looking at this thing of beauty, one might think he was beholding a rich and quaint piece of work, such as the Spaniards found in Peru and Mexico. One other piece of work is deserving of close scrutiny. It is in the shape of a plaque, set in a framework of velvet. This is simply to show what perfect work can be done in their foundry. The figures on it can be counted by the hundreds, yet all are perfect in the minutest details. This is a lovely piece of art, yet it was cast in their foundry by a common molder, but their peculiar sand alone allows them to turn out such work. All of their nickel-plating and bronzing is done in their shops. They have already sold nearly every stove in the exhibit.

The Stricle Brothers, of Louisville, two hard-working young men, have perfected and patented a car-starter. They have the attachment applied to a street car which is constantly watched by eager crowds and thoughtful mechanics and investors. The principle of the apparatus is a torsion spring made of leaves of steel, attached to the bottom of the car, running across. In the twisting of this spring the power is stored, and it is done by two friction-wheels applied to the rear wheels of the car instead of brake-shoes. The turning of the wheels when so applied turn a shaft which operates on the spring by a chain. When the brakes are taken off, the friction-wheels slacken and the twist or power in the spring operates on the car axle by means of a rachet, and the car, loaded, is sent forward 20 to 40 feet. Of course the momentum of the car when the brakes are put on furnishes the self-acting power that is stored in the twisting of the spring A Cincinnati company have paid $10,000 for the right to make and use the car-starter in that city. Capitalists from all parts of the country are eagerly trying to secure certain rights to use or control this invention. Strickle Brothers have more money offered them than they can make use of—and their fortune is secured.

The Cambria Iron Company, of Johnstown, Pa., have the most perfect exhibit of iron and steel in all stages ever shown in these parts before. Begining with the different kinds of ore they use, limestone, coal, coke, &c., one can follow the progress of the metal till it comes out the most beautiful and perfect instruments, wire, tools, &c. They have on exhibit probably the largest steel ingot ever cast, weighing 5600 pounds, and standing over 6 feet high. Others are cut up into sizes for use. There are stacks of pig iron, pig spiegel and several perfect open-hearth castings; locomotive tires in process of rolling. They have a handsome display of cold-rolled steel bars, and steel bars bent and tied into intricate knots. Their new patent link barbed wire attracts a great deal of attention. They have several tracks and curves of the Girder Street Railway, and claim superiority over all similar tracks. One of the tracks shown is part of a contract to be shipped to a city in Venezuela. They have secured several good orders already, which more than repay them for the expense of the exhibit.

Iron Gateway.

The accompanying illustration shows a massive iron gate that finishes one of the entrances to the Washington Building, erected at the lower end of Broadway, this city. It constitutes an interesting addition to the series of illustrations of modern iron-work which we have been presenting. The gate is of wrought iron, and the design has been most faithfully worked out by the mechanics who have constructed this work.



Iron Gate in Doorway Facing Battery Park, Washington Building, New York City.

The entrance in question faces Battery Park. The steps shown are finished with illuminating tile, which afford light to the basement. This work was executed by Messrs. J. B. & J. M. Cornell, of this city.

International Exhibition at Liverpool.—Arrangements for an International Exhibition of Navigation, Traveling, Commerce and Manufacture, to be held next spring in Liverpool, are now being made. The exhibition is under the patronage of the Queen, and many influential persons are interested in its success. There will be represented at this exhibition as large a collection as possible from every country, of all means and appliances both ancient and modern, for facilitating transportation. There will also be shown specimens of commercial products and manufactures illustrating the development of the various industries and their present condition. Where practical the actual vessels, carriages, raw and manufactured products, machinery, methods of manufacture, &c., will be shown, but otherwise models and diagrams will be substituted. A plot of ground 35 acres in extent has been secured and the exhibition will be held in a special building erected for the purpose. No charge will be made for space except in certain special cases, and diplomas and medals will be awarded to exhibitors. The regulations will be supplied on application to the secretary, Mr. Henry Bloomfield Bare, A 11, Exchange Buildings, Liverpool, England. It is proposed to devote the surplus funds of the exhibition to the foundation in Liverpool of a school for technical, artistic and industrial education.

The largest of the caissons to be used in the foundations of the bridge over the Schuylkill for the Baltimore and Ohio Railroad was launched in Philadelphia on Monday. It is 45 feet in diameter and its wooden sides are over 2 feet thick. The upper chamber of the caisson, which is 7 feet high, is filled with concrete, and thus prepared is sunk in position to the bottom of the river, the open end of the lower chamber resting upon the mud. This lower chamber is furnished with an aperture through which, by means of a large iron pipe, the men can be lowered from above the surface of the water, and with a pneumatic arrangement by which air is pumped into it at a pressure corresponding to its depth below the surface of the water. There are also other pneumatic appliances by which the mud or sand into which the caisson sinks is taken up to the surface of the river and disposed of. As this dirt is removed the caisson is sunk deeper and deeper by the weight of the concrete in the upper chamber until it strikes solid rock. When this is reached the lower chamber is filled with concrete, and, this done, the caisson, with its solid contents of concrete, becomes the foundation of the pier. This foundation is but 16 feet from bed rock, and upon it, by means of coffer-dams, a further concrete structure to within 6 feet of the surface of the water is built, the entire concrete foundation being octagonal in shape, 50 feet high, with a diameter of 45 feet.

Balloon Signaling.

The old subject of balloon signaling has again turned up, though in its latest form many of the earlier difficulties seem to have been successfully overcome. Schemes for signaling from balloons raised sufficiently high to give a clear view over the surrounding country have not been wanting in number, but the danger of lights on gas balloons, and the bulkiness of air balloons, have proved to be serious obstacles to success. The use of the incandescent lamp, however, as was fully demonstrated by experiments some years ago, avoids the first danger, and has made it possible for messages to be flashed backward and forward all night across a hostile country, and plans of attack or retreat to be discussed in cypher, even with a beleaguered garrison. This idea has been worked out in England to a very satisfactory degree, and Mr. Eric Stuart Bruce, of London, the inventor, a short time ago exhibited his apparatus in operation every evening. The balloon was 20 feet in diameter, and contained some 4000 cubic feet of gas. It was allowed to ascend to a hight of 500 feet, and was rendered visible by six incandescent lamps of 20 candle-power fed from a battery on the ground. The material of the balloon was translucent cambric, and when the lamps were in action the whole glowed with a soft light, which was very noticeable, and in a clear atmosphere could be seen for miles. In the conductors from the battery to the balloon was inserted a Morse key, by which the circuit could be made and broken and the lamps be caused to give long and short flashes, corresponding to the dashes and dots of the telegraph code. The present apparatus recalls, of course, the heliograph and the electric signaling apparatus used on men-of-war, but at the same time it has advantages over both. It can evidently be used in a flat country or between valleys separated by low hills, instead of being confined to elevated positions, like the heliograph. The balloon also shows a large illuminated disk in place of the small mirror, and can be packed, together with its batteries, in little compass for transport.

The Royal United Service Institution has had its attention directed to a system of torpedo warfare to be carried on in the air by means of balloons. These balloons, or aerostats, as they are called, are to be provided with contrivances for producing an automatic rise and fall, so as to enable them to land at the required points, and also to drop enormous shells loaded with gun-cotton upon an army, fort or arsenal.

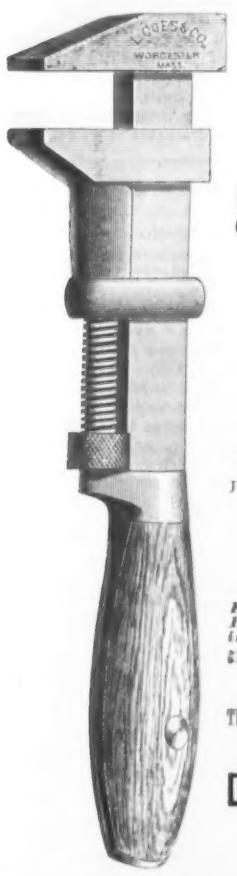
The statement comes from Scotland that Merry & Cunningham have in their recently completed basic Bessemer plant made basic steel carrying only 0.01 per cent. of silicon, a statement of some significance in the light afforded by the experiments with the Clapp-Griffiths process, since it indicates that the basic process can rival it in low silicon.

The Fiji Islands, which are still associated in memory with scenes of cannibalism, are having a commercial development almost without a parallel. Their total foreign trade in 1883 exceeded $800,000. The imports were chiefly machinery for sugar mills, one firm alone having spent $2,000,000 in the equipment of sugar plantations. The population numbers 115,000.

The total number of immigrants at this port during August was 31,841, including 6527 passengers in the cabin. For the month of July the number of immigrants arrived in the whole country was 28,304, as against 32,772 for the corresponding month last year.

The census of Dakota, which seeks admission as a State, has a population of over 400,000. New Mexico has 131,955, against 119,565 in 1880.

Gen. G. B. McClelland's copper mine in Texas has begun the shipment of copper matte to Eastern refiners.



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Knife Handle

PATENT

Screw Wrenches

MANUFACTURED BY

L. COES & CO.,

Worcester, Mass.

ESTABLISHED IN 1839.

Patented July 6, 1880. Patented July 8, 1884.

Registered March 31, 1874.

Sectional view illustrates our NEW KNIFE HANDLE, showing Malleable Iron Frame and Shank of Bar keyed into position.

Straight Bar, Extra LONG NUT FOR SCREW IN JAW.

The Best Made and Strongest Wrench in the Market.

Send for Illustrated Price List and Circular.

DURRIE & McCARTY,

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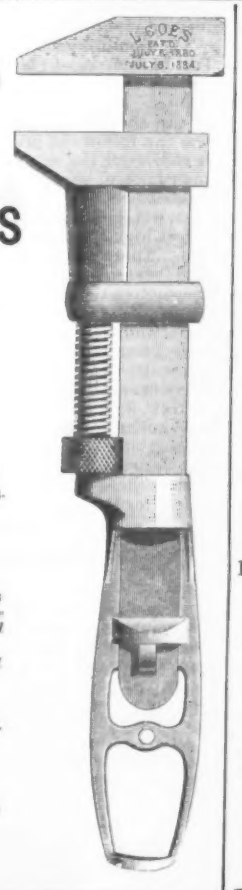

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PITTSBURGH, PA.,

BUILDERS' FINE HARDWARE,

RIM AND MORTISE DOOR LOCKS WITH

BURGLAR-PROOF ATTACHMENT

GENUINE BRONZE AND IMITATION BRONZE KNOBS, &c., &c.

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PADLOCKS.

TEA, COUNTER, UNION AND PLATFORM SCALES.

Catalogues and Lists furnished on application.

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Nos. 20 to 26 Main Street,

CARPENTERSVILLE, KANE CO., ILL.,

MANUFACTURERS OF

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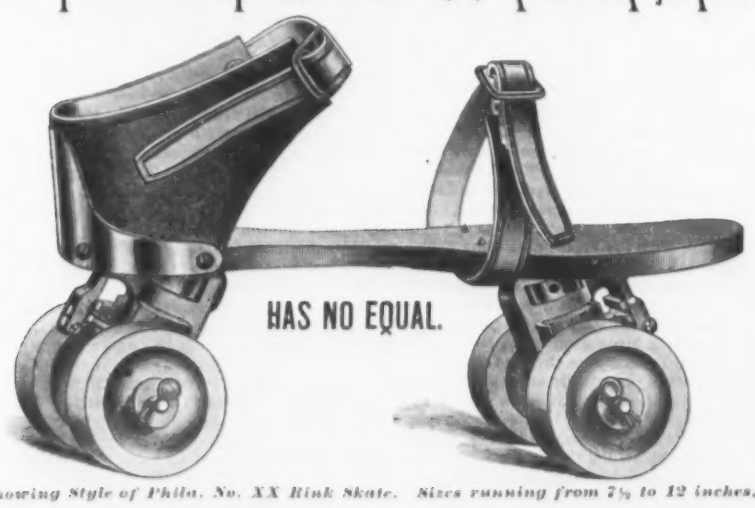
PATENT STEEL WAGON SKEINS,

Jack Screws, Tire Benders, Track Jacks,

Carriage Makers' Vises,

SAD IRONS, COPYING PRESSES AND STANDS, &c.

The PHILADELPHIA NO. XX ROLLER SKATE

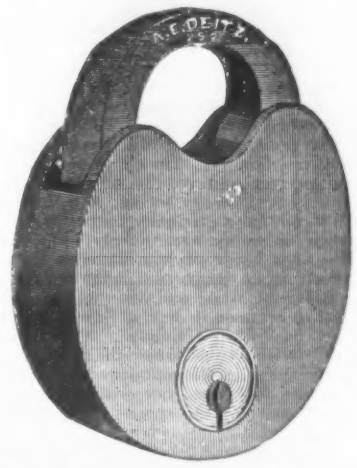


Showing Style of Phila. No. XX Rink Skate. Sizes running from 7½ to 12 inches.

With this Skate it is possible to describe the smallest circle ; do the fastest skating with greater ease than can be done upon any other skate upon the market.

Lloyd & Supplee Hardware Co., Philadelphia.

A. E. DEITZ.



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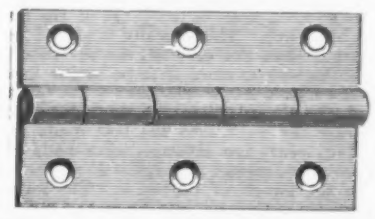

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BRASS, GALVANIZED & SHIP CHANDLERY

HARDWARE.

Nos. 16 & 18 Chambers Street.

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ALWAYS GIVES THE UTMOST SATISFACTION.

Main Belting Co.,

Manufacturers of

THE LEVIATHAN

COTTON BELTING.

Unsurpassed for Strength, Durability and Cheapness.

Made to any Length, Width and Strength.

Main Driving Belts.

Guaranteed to Run Straight, Even Throughout.

No Cross Joints, **Unaffected by Damp.** Clings well to the Pulley. Has no equal. In fact, is THE BELT.

MAIN BELTING COMPANY,

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PERINE PATENT

Double Shank, Curved Blade Hoe.

The characteristic feature of the invention is a Double Shank and Curved Blade, making a shear cut and acting as gouge. Supersedes all others wherever introduced. A few moments' trial will show its merits.

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Door Locks, Knobs,

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Soft Small Gray Iron Castings a Specialty.

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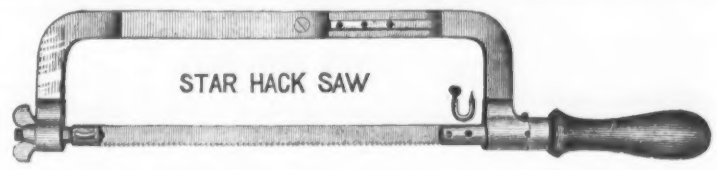

These STAR HACK SAWS are the only thing in our list for which the demand is steadily and rapidly increasing in these dull times. Every dealer who orders them is sure to increase the number in his second order. They will be in universal demand, and every store in the land can sell them at a profit, besides giving great satisfaction to their customers.

There is no risk in handling them, as we will take back every one which is not wanted, whether bought of us or some other dealer. We guarantee them to do double as much cutting as any other kind in market.

Length of Blade,	6,	7,	8,	9,	10,	11,	12,	assorted, 6 to 9.
Price per dozen,	55,	60,	65,	70,	85,	95,	105,	65 cents.

STAR HACK ★ SAW FRAMES.

WITHOUT BLADES.

	Per doz.
No. 0 extension frame, to hold 10, 11 and 12 inch, steel polished and nickeled.....	$12.00
No. 1 extension frame, to hold 6, 7, 8 and 9 inch, steel polished and nickeled.....	9.60
No. 2 solid frame, to hold 8 inch, steel polished and nickeled.....	8.40

As seen in the cut, these frames are all made adjustable, so as to face the blades in four different directions. They also have the patent staple-shaped pins to hold the blades in the frames, which are so arranged that they cannot fall out.

MILLERS FALLS CO.,

No. 74 CHAMBERS ST., NEW YORK.

CHAMPLAIN

Forged Horse Nails.

MANUFACTURED BY THE

NATIONAL HORSE NAIL CO.,

Vergennes, Vermont.

HOT FORGED AND COLD HAMMERED POINTED MADE OF BEST NORWAY IRON AND WARRANTED.

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MANUFACTURERS OF

BEST CHARCOAL BOILER PLATES,

AND PLATE IRON GENERALLY.

ALSO BEST QUALITY HOMOGENEOUS STEEL PLATES.

We ask the special attention of the trade to our **C. H. No. 1 Boiler Plates,** which we manufacture expressly for the **Shells** of Steam Boilers and stamp **50,000 pounds T. S.** when desired. **One hundred and sixteen tests** of this iron, made during the last three years by the **U. S. Inspectors of Steam Vessels,** show an **average tensile strength** of **58,808 pounds** to the sectional square inch, and an **average reduction of area** of the fractured section of **30½ per centum.** Our prices are as low as the production of a good article will admit of.

VARIETY IRON WORKS.

ALFRED C. REX & CO.,

Manufacturers of

PATENTED HARDWARE SPECIALTIES AND NOVELTIES.

MAIN OFFICE AND FACTORY:

FRANKFORD, PHILA.

BRANCH OFFICES:

126 Chambers St., New York, Chas. E. Spier, Mgr and 415 Commerce St., Phila.

New Spring Specialties—King Egg Beaters, awarded medal at American Institute, New York; King Candle Lamp and Lantern, cheapest combination ever made.

STRONGEST ACME WRENCH *AND BEST.*

ALL STEEL CASE-HARDENED JAWS. WARRANTED. MANUFACTURED BY

OWSLEY BROS. & MARBLE, 784 to 794 Madison St., CHICAGO, U. S. A.

Description and Price List Furnished upon Application.

PURE TURKISH EMERY.

WALPOLE EMERY MILLS

South Walpole, Mass.

THE WEEK.

According to the report of Vice-Consul Coen, English contractors and engineers are rapidly making a railroad from Samana to Santiago, and have undertaken the work of cleaning the port of the city of Santo Domingo.

A degree of activity in building operations rarely equaled in this city is observed on the west side, where millions of dollars are being invested in handsome residences and other dwellings. The chief incentive is cheap money and the low price of material.

The German East African Society is said to have acquired title to 2500 square miles of territory commanding access to the Nile, Congo and Zambezi rivers, as well as the chief roads to the interior.

The St. Louis *Republican* estimates the loss of nearly $5,000,000 by local investors during the present year through the failure of the Ore and Steel Company, through the Vulcan Iron Works, the Harrison Wire Works, the Belcher Sugar Refining Company and other kindred enterprises.

Capt. James B. Eads is about to leave for Brazil on an invitation from the Emperor, to examine and report upon plans for harbor improvement.

A new tanning agent likely to be of great value is said to have been discovered in Arizona—one which also has the property of adding weight to the leather. The plant is an annual, and grows upon desert and dry upland soil. It is known by the Mexicans and Indians as "Gonagra." The discoverer is a Mr. Edwards, who is having this root delivered to him for about $8 per ton, while oak bark cost $20 per ton in San Francisco.

Consul-General Stahel, who has temporarily returned from his post at Shanghai, China, says that no event of recent years has had so beneficent an effect upon the great Empire as the Franco-Chinese war. "The disadvantages under which China suffered in that contest demonstrated the importance of railroads and telegraph lines, and did more than all preceding events to wipe out the superstitious opposition to these institutions." The railroad and telegraph systems in China will, in his opinion, be developed during the next few years with a rapidity almost unprecedented.

According to advices received in Washington City, the German Government has recently sent to South America a commercial commission composed of Prince Frederick von Hohenlohe and Herr von Scholer, and they propose to visit all the countries of Central and South America for the purpose of studying those markets and introducing their goods. A line of steamers from Hamburg has recently commenced making regular trips to the west coast as far as Guatemala, under Government patronage. The objects are apparently identical with those of the recently appointed United States commission.

Ex-Judge Taft, late American minister to Russia, says that but for our superior railroad transportation America could not compete successfully with that country in producing grain. They also have no lack of petroleum at half the price of American. The manufacturing of the country is becoming very large under high protective duties.

A workman in the screw factory in New Britain, Conn., was on Friday caught in the machinery and his neck broken.

The estimated cost of the new water works extension in St. Louis approaches $3,000,000.

Daft's electric motor on the Ninth Avenue Railroad on Friday last ran 20 miles an hour, and it is promised that this speed will be doubled.

There is a machine which quickly destroys large spruce logs and converts them into wood-pulp for the manufacture of paper. The logs are cut into lengths of about 15 inches, the bark is removed, the blocks are split so that knots may be extracted, and the clear sticks are packed in the compartments of a hollow iron cylinder. Within this cylinder an iron wheel, the surface of which is covered with emery, revolves with immense velocity. Against this wheel the sides of the sticks are firmly and steadily pressed and the fibers of the wood are rubbed away. The friction is necessarily enormous, and copious streams of water run constantly over the material to prevent conflagration.

Now that natural gas is being introduced into Pittsburgh houses for fuel, an equitable method of charging for it is sought. Measurement seems to be impracticable, and thus far the usage has been to fix the prices for each building as nearly as possible the same as the cost of other fuel has been. This gives rise to a great amount of bargaining and dissatisfaction.

One of the largest fruit farms in the world is situated in the southern part of Florida, and is owned by E. A. Osborn, of Middletown, N. Y. It comprises 2500 acres, and is covered with over 200,000 cocoanut trees. So far the undertaking has cost over $100,000. As the cocoanut only thrives south of the frost line and near the coast, the owner of this farm has a practical monopoly of that trade in Florida.

The official figures of navigation in the Italian ports during 1884 show a diminution, as compared with 1883, of 11,027 ships, and of 2,940,109 tons. The diminution is attributed primarily to the cholera, and in a minor degree to the decline of wine exports and of the emigration movement.

Jersey City will have an elevated cable road in operation about September 25.

Nathaniel McKay, the shipbuilder has gone to Europe to visit the Government dock-yards and the private shipbuilding works of England and France, to investigate the system of building vessels there, the wages paid for labor, how the workingmen live and the expense of living. He will also make a careful investigation of how ships can be built at the other side at £9. 6d. per ton, or 20 per cent cheaper than here.

Large orders received in Philadelphia for the manufacture of textile machinery indicate a new start in this important branch of manufacture.

Chauncey M. Depew, president of the New York Central Railroad Company, anticipating a harmonious adjustment of railroad differences, cherishes hopeful feelings respecting the business future. "Everything," he says, "is tending to a settlement of the railway wars. It is fair to look from the costly experience of the last few years to an adjustment of differences, upon principles sufficiently sensible and business like to survive the disturbances and depressions which have hitherto broken up the make-shift arrangements which, under one name or another, have characterized the temporary conditions of peace or truce in the railroad world. There seems to be a considerable misapprehension as to the settlement of these wars and disturbances. The condition of the West Shore and the conflict between the trunk lines have been the great cause of the industrial depression for the past two years. Railroad securities represent such an enormous volume of investment funds that when they are seriously affected credit is generally impaired, confidence destroyed and business damaged. If the present efforts to secure harmonious action among railroads and fair and reasonable return from the investments are successful, we shall immediately enter upon a new era of prosperity. The hundreds of millions of idle money now in banks or trust companies will flow out into investment and development all over the country. New enterprises will be projected, manufacturers will become prosperous and laborers find abundant employment at good wages."

Hayti formerly took hundreds of cargoes from Boston every year, but the trade is now almost extinct.

A ton of nitro-glycerine exploded in the works of W. B. Roberts & Son, near Bradford, Pa., and where the factory stood was formed a deep pit. For rods around the ground was torn up, covered with twisted fragments of wood, tin and lead pipe. Stones weighing 30 pounds were carried 100 yards through the air.

The official statistics of exports of hog products from the United States during the first nine months of the packing year are deserving of notice. Compared with the corresponding period last year, there is an increase of 27,000,000 pounds of bacon, 49,000,000 pounds of lard, 22,000,000 pounds of pork and 7,000,000 pounds of ham—in all, 105,000,000 pounds. This gain amounts to over 20 per cent., and, judging by the movement the past month, it is more than probable that the increase for the entire packing year will be at least 25 per cent.

The authorities of Portland, Me., have contracted with parties in New York for the introduction of electric lamps, wholly displacing the apparatus now in use in that city.

The American minister at Madrid has arranged a commercial treaty between the two countries. The new treaty is confined to reforms in the Cuban custom laws. Spain accepts the interpretation of the *modus vivendi*, signed in February, 1884, which was contended for by the United States.

New Orleans has begun to recover from the severe business depression of the last year, as a consequence of the enormous crops of cotton and rice about to mature. The latter will exceed 300,000 sacks. During the year the bank clearings showed a loss of 20 per cent., while the imports fell off $2,000,000 and the exports $4,300,000, compared with the previous year.

In the report of the South American Commission on its visit to Uruguay, prepared for Congress, is the following: "We unhesitatingly say that in our opinion the United States can in a few years advance to a position as superior to any other nation in its commerce with this country as it is now inferior. The object can be reached by placing a steamship line on such a basis that it can carry freight and passengers as at low a rate from Montevideo to our ports as they are now transported to Europe. Moreover, the present is an exceedingly propitious time to promote the commerce. The transition state of this land, the new life before it, the growth of its power to demand and consume, the kindly eyes it turns to our shores, all urge a speedy opening of the channels of trade between the two countries."

An air-balloon railway is about to be constructed on the Gaisberg, near Salzburg. The balloon, which will have grooved wheels on one side of its car, will ascend a perpendicular line of rails constructed on the principle of the wire-rope railway invented years ago for the Righi, but never realized.

It is estimated that there are 100,000,000 acres of land on the Pacific Coast of the United States that are especially adapted to wheat culture. Of this California has 25,000,000, or one-fourth of the whole; Oregon has 18,000,000 acres; Washington Territory has 16,000,000 acres; Colorado and Idaho, 10.000,000 each; Montana, Utah and Wyoming, 7,000,000 each, and the great bulk of all this wheat land yet lies untouched.

A New Zealand conifer resembling the yew tree has been discovered by an American to be remarkably rich in tannin, the percentage being 28.66, as compared with 24.18 for sumac and 8.85 for oak, and considerable quantities of the bark are being imported at $40 per ton, exclusive of freight.

The Louisville tobacco trade this year will reach about 100,000 hogsheads.

The receipts of flour and wheat at Portland, Ore., during the past cereal year, amounted to 246,000 tons, of which 183,000 went to Europe.

The Western Boat Building Company, of St. Louis, who last year enjoyed much notoriety from plans furnished the British Government for stern-wheelers for the Nile, made an assignment last week. They were the only Western bidders for the dispatch boat Dolphin.

Dr. Norvin Green, President of the Western Union Telegraph Company, in an examination before the Electric Subway Commission, admitted that their whole system of wires could be carried underground through 3-inch iron pipe filled with paraffine oil, but there was the impediment of cost. He said: "There is not much difference in the cost of putting down one wire and 100, but we certainly would not attempt to lay single wires in all our lateral branches underground. The number of wires that we can place in a 3 inch pipe depends upon how heavily we insulate them. In round figures a wire insulated with gutta-percha and placed underground costs about $100 a mile, while a wire overhead costs about $23, and the buried wire will not last one-third as long as the one strung on poles. In fact, wires will not be serviceable so long underground as they are under water. We have wires in the country that have done service for 30 years and are still good. Many underground wires have to be replaced after a year's service. Everything depends on the nature and thoroughness of the insulation. Our company have spent a great deal of money experimenting on insulation, and we have found nothing yet that will render a wire as lasting underground as it is in the open air."

The secretary of the Mexican Commercial Exchange in St. Louis is arranging for a visit by 50 Mexican merchants, who will attend the approaching exposition.

We see it stated that such great manufacturers as Krupp, Whitworth, Armstrong and Hotchkiss have to send to America for all their screw-bar wrenches. About 80,000 dozen are exported to Europe annually. The inventor, Charles Moncky, lives in a small cottage in Brooklyn.

The oven-room of S. S. Marvin & Co.'s steam bakery on Liberty street, Pittsburgh, Pa., was the scene of a natural-gas explosion on Monday morning, by which five persons were terribly burned, two of them, it is thought, fatally.

A Liverpool lumber firm reports that the Ottawa lumbermen are doing a more profitable trade now than for years past; that prices average 3 to 4 per cent. better than last year.

The agitation which was commenced by the New York Chamber of Commerce in favor of improved bills of lading, defining more specifically the liabilities of shipowners, has resulted in the adoption by Lloyds and European underwriters generally of two new forms, which came into use September 1. As the new documents do not apply to the Atlantic trade it is not likely that American shippers will allow the agitation to subside.

New Haven taxpayers are excited over the discovery that the drawbridge over the Quinnipiac, built only nine years ago, at a cost of $180,000, is likely to tumble into the water, owing to detective foundations.

A Philadelphian who has just returned from a business trip to Chili condemns unsparingly the proposed permanent exhibition in that country, which we are told was "concocted by Horace N. Fisher, consul of Chili in Boston." "In the first place," he says, "it is proposed, in order that the exposition may conform to the objects of the Government, according to the circular, to include, besides manufactures, the products of agricultural and mining industries. American firms are expected to furnish expensive samples of all these products, and the act of Assembly incorporating and authorizing the exposition provides that they must pay all expenses of packing and transportation as far as Valparaiso. From that point to Santiago the Government takes charge of the goods. Now here comes the most remarkable provision. The articles are to be admitted free of duty through the custom house at Valparaiso, and immediately thereafter will become the property of the Government. For the privilege of making such valuable presents to the Government the exhibitor will be obliged to pay $25 in American money for every package not exceeding 1 cubic meter, or 35 cubic feet, in measurement, and proportionately for larger packages. These payments are to be made to the consul of Chili in the United States from whom the the permission to exhibit has been obtained. This official will be given full power to decide upon the admission of the goods, and will not accept any unless the entrance money is paid in advance."

The beet-sugar factory at Alvarado, Cal., has made 1250 tons of refined sugar this year. It takes 20,000 tons of beets annually from the farmers at $4.50 a ton, the yield averaging 20 tons to the acre. During the six years that it has been in operation the factory has paid dividends amounting to $104,000 on an investment of $125,000.

C. A. Van Bokelin, of New York, formerly United States consul-general in Hayti, who was released after 15 months' confinement in a loathsome dungeon on a peremptory demand from Washington, has arrived in this country, and will lodge claims for heavy damages with the State Department.

The tax rate in New York City for the year 1884 was $2.25; the rate for this year is $2.40. The increase is not on account of larger appropriations, but because the Board of Estimate last year applied unexpended balances of previous years in defraying current demands.

The Madrid Government has decided to impose duties on American straw paper imported into Cuba under Article 192 of the ruling tariff. The trade of late years has assumed large proportions.

J. S. Lamar, of Atlanta, Ga., has invented a plow that should prove a great labor-saving machine for planters. It is to be used as a cotton chopper. The shape is that of an ordinary cultivator plow, with shaft for single horse, and with handles to the plow to guide the chopper. Two wheels on a shaft run on each side of the cotton row, and the chopper is a revolving wheel in the rear that works by cogs from the lateral wheels, and, as the horse moves, the wheel in the rear revolves and shaves the cotton to proper stand.

The report of Thomas Waller, consul-general at London, upon the leather and boot and shoe trades in Great Britain seems to be more satisfactory to American leather dealers than the previous reports from Munich, Liverpool and Leith. The export of American leather has been constantly increasing, so that now leather valued at nearly $10,000,000 is annually shipped from this country to Europe, one-half of which leaves this port. Several accounts agree in representing that, if Americans would extend the trade, the cost of additional labor which might be expended in this country in a superior finish would not be compensated in the higher price realized.

The all-rail route from Jacksonville to Tampa has been completed, and it is expected that when fully equipped steamers will leave Tampa every other day with the Cuban mail.

Complaint is made of extortionate custom-house charges by Canadian authorities at Port Sarnia, on the dividing line between Canada and the United States.

A. S. Lyman, the well-known inventor of the fiber gun for manufacturing wood-pulp, and of the multicharge cannon, died suddenly in Brooklyn, August 27.

Carl von Lowenfels, stenographer and acting secretary of the South American Commission, in alluding to the work of the commission among the Southern Republics, speaks of the United States as being comparatively unknown among the countries visited. In the principal cities there are French and English bazars, but there is no representative shop, except in Valparaiso, where an American merchant "sells everything, from a steam engine to a biscuit."

The West India hurricane which swept the Atlantic Coast dismasted scores of large vessels, and in Charleston destroyed property to the value of $1,690,000.

John G. Farnsworth, receiver of the Bankers' and Merchants' Telegraph Company, has begun suit in the Supreme Court against the Western Union Telegraph Company for $2,000,000 damages, caused by the recent seizure of the plaintiff company's wires by the Western Union Company.

The Alaska Commercial Company's steamer St. Paul arrived at San Francisco from Ounalaska with 99,996 seal skins, valued at over $1,000,000.

The German Government is preparing, for the approval of the Reichstag, bills for the construction of several new canals within the Empire. One of these bills is for a ship canal from the Baltic Sea to the German Ocean, with strong forts at each mouth and at commanding points along the route. This work will cost an enormous sum of money

Oysters to the value of $1,000,000 have been destroyed in New York harbor by sludge acid from oil refiners and dumpings from scows.

The new iron steamship Comal, now the flagship of Mallory's Texas line from this port, has compound double condensers and has already been driven at the rate of 15½ knots an hour.

Consul Lewis, at Sierra Leone, reports that American manufacturers are likely to receive more encouragement, now that the interior African tribes are no longer at war.

The two underground railway companies in this city, lately engaged in fierce litigation, have united their forces under President Vandenburgh, and expect to build.

North Carolina is developing the tobacco trade on a large scale, giving employment to 50,000 persons, and making heavy direct shipments to Europe.

An ex-president of the Chamber of Shipping of the United Kingdom, whose statistics relating to tonnage and cargoes carried have on several occasions served a useful purpose, writes to the London *Times* to point out the perilous consequences of continuing to build ships largely in excess of ability to employ them. The surplus tonnage thus forced on the market is being purchased at the lowest prices by foreigners, who are now sharply competing with England in trades not long ago in her exclusive control.

The new American minister to Turkey, Mr. Cox, had an audience of a very cordial nature with the Sultan on August 25. Mr. Cox took the opportunity to thank the Sultan for the great compliment paid to America in allowing the corvette Quinnebaug to be docked and repaired without expense, assuring His Majesty that the American Government would be happy to show a similar courtesy whenever an opportunity occurs.

Smuggling on the northern frontier of Mexico results in the loss of $1,500,000 annually to the Federal treasury, according to the estimates of the *Mexican Financier*.

Respecting the immense timber resources of Washington Territory, a correspondent at New Tacoma says: "There is probably no more densely wooded country than that lying west of the Cascade Range. From the summits of the peaks to Puget Sound it is one vast tract of timber. Fir and cedar predominate in the woods. A tree in the East with a diameter of 4 feet is considered very large. Here the firs and cedars attain a diameter of 8 and 9 feet, and are sometimes 30 feet in circumference. They shoot up into the air for 200 feet and more as straight as an arrow, and often they have not a limb for a distance of 100 feet from the ground. These figures do not apply to one tree alone. Thousands are as thick and high. There are large fir trees on the eastern side of the mountains, but their growth is not so large on the western side, probably because in that section of the country there is less rainfall. Export trade in lumber to Australia and points beyond the ocean is good, and there is little chance of its becoming stagnant for want of material. Nowhere in the country is it possible to get better lumber than these firs produce, or lumber that is longer in one stick. We traveled through this grand forest during the entire day."

The people of the United States, in common with those of England, deplore French aggression in Madagasgar, which is as ferocious as it is without justification or color of right. The island is larger in extent than the British Isles and has a population of about 3,000,000. Of late years the advance of the people toward an enlightened civilization has been marvelous, but there is at present no power to remonstrate against their destruction, politically or commercially.

The consumption of sugar in the United States at present prices, which are the lowest in the history of the trade, is enormous. The total net consumption of foreign sugar during the fiscal year ending June 30 was 2,400,000,000 pounds, which is an increase of nearly 273,000,000 pounds compared with the previous year. The value amounted to only $73,519,514, against $98,262,597 for the year previous. Thus it will be seen that the nation's sugar bill was about $25,000,000 less, while the imports were nearly as large.

British farmers are alarmed by the success of the trade in live cattle, which can be bought in Wyoming Territory, Montana or Dakota at $31 50 per head, and laid down in London at $22.80 additional. "At these rates," says the *British Trade Journal*, "it will be found that in this trade of supplying London with cattle from the great prairies of the Northwest there is an enormous and profitable field for enterprise." The dead-meat trade, on the other hand, is pronounced a failure.

The Chilean ironclad Blanco Encalada was docked at Hebburn-on-Tyne recently, for the first time since she left England, 10 years ago. The iron bottom of the hull had been then covered with teak plank, fastened with iron and sheathed with zinc sheets, in the hope that this arrangement would keep the under-water part of the ship fairly clean and free from decay. It was worthy of record that the bottom was found remarkably clean, notwithstanding its 10 years' immersion, and that the waste of the zinc sheathing was scarcely as much as had been anticipated. No evidences of any injury to the iron plating of the ship's bottom, which was examined in places, could be detected. The experiment of the zinc sheathing upon a single layer of wood was thus found to have been even more successful than could have been hoped.

Current Hardware Prices, September 2, 1885.

HARDWARE.

Anvils.
Eagle Anvils American.... ⅌ ℔ 10¢—dis 20 %
Wright's.... 9¾ @ 10¢
Armitage's Mouse Hole.... 9¢
Armitage Mouse Hole, Extra.... 11½¢
Trenton.... 9½¢
Wilkinson's.... 9½¢@10¢
J. & Riley Carr, Patent Solid.... 11@11½¢

Anvil Vise and Drill.
Millers Falls Co., $18.00.... dis 20 %
Cheney Anvil and Vise.... dis 25 %
Allen Combined Anvil and Vise, $2.50.... dis 40 %

Augers and Bits.
Douglass Mfg. Co.... dis 70 %
Other First Quality.... dis 60&10 @ 60&10&5 %
Snell's.... dis 60@60&7½ %
Cook's, Douglass Mfg. Co.... dis 55 %
Cook's, New Haven Copper Co.... dis 50&10@50&10&5 %
Ives' Circular Lip.... dis 60 %
Patent Solid Head.... dis 30 %
C. E. Jennings & Co., No. 5.... dis 40&10 %
C. E. Jennings & Co., No. 30.... dis 60&10 %
C. E. Jennings & Co., Auger Bits, in fancy boxes, ⅌ set, 32½ quarters, No 5, $5; No. 30, $3.... dis 20 %
Lewis' Patent Single Twist.... dis 45 %
Russell Jennings' Augers and Bits.... dis 25 %
Imitation Jennings Bits (new list). dis 50&10@50&10&5 %
Car Bits, Snell Mfg. Co.... dis 40&10&10 %
Car Bits, New Haven Copper Co.... dis 50&10 %
L'Hommedieu Car Bits.... dis 15 %
Snell Mfg. Co.'s Jennings' Bits (new list).... dis 50&5 %
Expansive Bits, Clark's small, $18; l'ge, $26.. dis 33⅓@35 %
Expansive Bits, Ives' No. 4, per doz., $60. dis 35@35&5 %
Expansive Bits, Swan's.... dis 40 %
Expansive Bits, Ansonia.... dis 25 %
Expansive Bits, Steer's, No. 1, $26; No. 2, $22.. dis 35 %
Hollow Augers, Ives' / Hollow Augers, French, Swift & Co. / Hollow Augers, Douglass' } dis 25&10 %
Hollow Augers, Bonney's Adjust. ⅌ dz. $48.. dis 40&10 %
Hollow Augers, Stearns' Adjust. ⅌ dz. $48—dis 20&10 %
Hollow Augers, Ives' Expansive, each $4.50. dis 45 @ 50 %
Hollow Augers, Univ'l Expan.. each. $4.50.... dis 20 %
Wood's.... dis 25 %
Gimlet Bits.... ⅌ gross $3.00 @ $3.25
Gimlet Bits, Diamond.... ⅌ doz. $1.10, dis 25&10 %
Gimlet Bits, "Bee".... dis 25 %
Double Cut Gimlet Bits, Shepardson's.... dis 45 %
Double Cut Gimlet Bits, Ct. Valley Mfg. Co.. dis 30&10 %
Double Cut Gimlet Bits, Hartwell's, ⅌ gro, $6.50. dis 10 %
Double Cut Gimlet Bits, Douglass'.... dis 40 %
Double Cut Gimlet Bits, Ives'.... dis 50&10 %
Syracuse Twist Drill Bits.... dis 30 @ 30&5 %
Holtz Bit Stock Drills.... dis 25&10 %
L'Hommedieu's Ship Augers.... dis 15 @ 20 %
Watrous's Ship Augers.... dis 15 @ 20 %
Snell's Ship Augers.... dis 15 @ 20 %
Snell's Ship Auger Pattern Car Bits.... dis 15 @ 20 %

Awl Hafts.
Sewing, Brass Ferrule.... $3.50 ⅌ gross—dis 40&10 %
Patent Sewing, Short.... $1.00 ⅌ doz—dis 40&10 %
Patent Sewing, Long.... $1.20 ⅌ doz.—net
Patent Peg, Plain Top.. $10.00 ⅌ gross—dis 40&10&5 %
Patent Peg, Leather Top. $12.00 ⅌ gross—dis 40&10&5 %

Awls, Brad Sets, &c.
Awls, Sewing, Common.... ⅌ gross $1.70—dis 35 %
Awls, Shouldered Peg.... ⅌ gross $2.45—dis 40 %
Awls, Patent Peg.... ⅌ gross 63¢—dis 40 %
Awls, Shouldered Brad.... $2.70 ⅌ gross—dis 35 %
Awls, Handled Brad.... $7.50 ⅌ gross—dis 45 %
Awls, Handled Scratch.... $7.50 ⅌ gross—dis 35&10 %
Awls, Socket Scratch.... $1.50 ⅌ doz—dis 25 @ 30 %
Aiken's Sets, Awls & Tools.. ⅌ doz. $10.00—dis 50&10 %
Millers Falls Adj. Tool Handles.... ⅌ doz $12—dis 25 %
Fray's Adj. Tool Handles, No. 1.... ⅌ doz $12—dis 25 %
Fray's Adj. Tool Handles, No. 2.... ⅌ doz $18—dis 25 %
Brad Sets, No. 42, $10.50; No. 43, $12.50... dis 70&10&5 %
Brad Sets, Stanley's Excelsior, No. 1, $7.50. / Brad Sets, Stanley's Excelsior, No. 2, $4.00. / Brad Sets, Stanley's Excelsior, No. 3, $5.50. } dis 25&10 %

Axes.—Best grades, according to brand.... ⅌ doz $6.25 @ $7
Good Seconds.... $5.50 @ $6

Axle Grease.
Frazer's, in bulk.... Keg ⅌ ℔, 5¢; Pail, ⅌ ℔, 6¢ net
Frazer's, in boxes.... ⅌ gross $10.00 net

Axles.—Common.... ⅌ ℔, 3½@3¾¢
Fine Axles, 1¼ in. and under.... dis 60&5 @ 60&10 %
Fine Axles, over 1¼ in.... 4¾ @ 5¢ ⅌ ℔

Bag Holders.
Sprengle's Pat., ⅌ doz $18.... dis 60 %

Balances.
Spring Balances.... dis 40&10 %
Common 24 ℔.... ⅌ doz., $1.50—dis 40&10 @ 50 %

Bells.
Hand, Light Brass.... dis 75&10 @ 80 %
Hand, Extra Heavy.... dis 65 @ 65&10 %
Hand, White Metal.... dis 70 %
Hand, Silver Chime.... dis 25&10&5 %
Hand Globe (Cone's Patent).... dis 25&10 %
Gong, Abbe's.... dis 25&10 %
Gong, Yankee.... dis 40&10 %
Gong, Barton's.... dis 40&10 %
Crank, Taylor's.... dis 25&10 %
Crank, Brooks'.... dis 50&10&2 %
Crank, Cone's.... dis 10 %
Crank, Connel's.... dis 20&10 %
Lever, Sargent's.... dis 60&10 %
Lever, Taylor's Bronzed or Plated.... net
Lever, Taylor's Japanned.... dis 25&10 %
Lever, R. E. M. Co.'s.... dis 50&10&2 %
Pull, Brook's.... dis 50&10&2 %
Pull, Western.... dis 25&10 %
Call.... dis 40@40&5 %
Cow, Common Wrought.... dis 60&10 @ 60&10&5 %
Cow, Western.... dis 20&10 %
Cow, Western, Sargent's list.... dis 70&10 %
Cow, Kentucky "Star".... dis 20&10 %
Cow, Kentucky, Sargent's list.... dis 70&10 %
Cow, Dodge, Genuine Kentucky, new list.... dis 70 %

Nos.	0	1	1½	2	3	4	5	6	7	Hog
	$12.00	10.00	9.00	8.00	6.00	5.00	4.00	3.00	2.50	5.00

Cow, Texas Star.... dis 50@50&5 %
Farm Bells.... ⅌ ℔, 3¼¢.
Steel Alloy Church and School Bells.... dis 40 %

Bellows.
Blacksmiths'.... dis 50&10@50&10&5 %
Molders'.... dis 50 %
Hand Bellows.... dis 50 %

Belting, Rubber.
Standard.... dis 70&5 %
Extra.... dis 60&5@60&10&5 %
N. Y. Belting & Packing Co., Standard.... dis 60&5 %
N. Y. Belting & P'k'g Co., Extra Standard.. dis 50&10 %
Cleveland Rubber Co., Extra Standard.... dis 60&10 %

Bench Stops.—Hotchkiss's.... ⅌ doz $5.00—dis 10 %
Weston's, per doz No. 1, $10; No. 2, $9—dis 25&10 @ 25&10&5 %
McGill's.... ⅌ doz $3—dis 10 %
Morrill's.... ⅌ doz $7.50—dis 40&5@40&10 %

Bit Holders.
Extension, Barber's.... ⅌ doz $15.00—dis 40&5 %
Extension, Ives'.. ⅌ doz $20.00—dis 40&10 @ 40&10&5 %
Diagonal.... ⅌ doz $24.00—dis 40 %
Angular.... ⅌ doz $24.00—dis 40&5 %

Blind Adjusters.
Domestic.... ⅌ per doz $3.00—dis 30 %
Excelsior.... ⅌ doz $10.00—dis 50&10&2 %

Blind Fasteners.
Mackrell's.... ⅌ doz pairs, $1.00—dis 20&10 %
Van Sand's Screw Pattern.... $15 ⅌ gro.—dis 50&10 %
Van Sand's Old Pattern.... $15 ⅌ gro.—dis 50&10 %
Washburn's Old Pattern.... $9 ⅌ gro. net
Merriman's.... new list, net
Salisbury & Austin No. 2008.... $9 ⅌ gro. net
Security Gravity.... $9 ⅌ gro. net

Blind Staples.
Barbed, ½ in. and larger.... ⅌ ℔ 8 @ 8½¢ net
Barbed, ⅜ in.... ⅌ ℔ 9 @ 9½¢ net

Blocks.
Tackle Blocks, &c. list April 17, 1885.... dis 20 %
Reed Mfg. Co. Self-Lubricating.... dis 50 %

Bolts
Cast Iron Barrel, Square, &c.... dis 70 @ 70&5 %
Cast Iron Shutter Bolts.... dis 70 @ 70&5 %
Cast Iron Chain (Sargent's list).... dis 70 @ 70&5 %
Ives' Patent Door Bolts.... dis 55&10 %
Wrought Barrel.... dis 70 @ 70&5 %
Wrought Square.... dis 70 @ 70&5 %
Wr't Shutter, all Iron, Stanley's list.. dis 50&10&10&5 %
Wr't Shutter, Brass Knob, Stanley's.. dis 25&10&10&5 %
Wrought Shutter, Sargent's list.... dis 60&10&5 %
Wrought Sunk Flush, Sargent's list.... dis 60&10&5 %
Wrought Sunk Flush, Stanley's list.... dis 40&10&5 %
Wrought B. K. Flush, Com'n Stanley's list.... dis 55 %
Tire, Common, list Feb. 28, 1883.... dis 70&5 @ 70&10 %
Carriage, Com. list June 10, '84.... dis 80 @ 80&10 %
Carriage, Genuine Eagle, list Oct. 7, '84.. dis 75&5@75&10 %
Carriage, Phila. pattern, list Oct. 7, '84. dis 75&10@80 %
R. B. & W., Carriage, old list.... dis 70&5 %
Tire, Am. S. Co., Norway, Phil., list Oct. 16, '84. dis 82½ %
Tire, Am. S. Co., Eagle, Phil., list Oct. 16, '84.. dis 82½&5 %
Tire, Am. S. Co., Bay State, list Feb. 28, '83.... dis 70 %
Tire, R. B. & W., Philadel. list Oct. 16, 1884.. dis 80&5 %
Stove.... dis 70 %
Plow.... dis 65 %
Plow, R. B. & W.... dis 50&5 %
Machine.... dis 80 %
Bolt Ends.... dis 80 %

Borax.... 9¢ @ 9½¢ ⅌ ℔ net

Boring Machines.

Without Augers.	Upright.	Angular.
Douglas	$5.50	$6.75.... dis 50 %
Snell's, Rice's Patent	5.50	6.75. dis 40&10&10 %
Jennings	5.50	6.75. dis 45@45&10 %
Other Machines	2.50	3.00.... net
Phillips' Pat., with Augers	7.00	7.50.... net

Bow Pins
Humason, Beckley & Co.'s, Nos 1 and 2—dis 60&10 @ 60&10&5 %
Humason, Beckley & Co.'s other Nos.. dis 70 @ 70&10 %
Sargent & Co.'s.... $17 and $18, dis 60&10 %
Peck Stow & W. Co.... dis 50&10 @ 50&10&5 %

Braces.
Q. S. Backus.... dis 50&10 @ 50&10&10 %
Barber's, Nos. 10 to 16.... dis 50 %
Barber's, Nos. 30 to 33.... dis 40&10 %
Barber's, Nos. 40 to 63.... dis 40&10&5@50 %
Spofford's.... dis 50&10 @ 50&10&10 %
Ives' Patent Braces.... dis 60@60&5 %
Common Ball, American.... dis 55&10 %
Bartholomew's, Nos. 25, 27, 30... dis 50&5 @ 50&10&5 %
Bartholomew's, Nos. 117, 118, 119.... dis 65 %
Amidon's Barker's Imp'd.... dis 60@60&10&5 %
Amidon's Corner Brace.... dis 40 @ 40&5 %
Universal.... 8 in., $1.90; 10 in., $2.10
Buffalo Ball.... 8 in., $1.50 @ $1.55

Brackets.
Shelf, plain, Sargent's list.... dis 60&10 %
Shelf, fancy, Sargent's list.... dis 60&10&10 %
Reading, plain.... dis 60&10&5 %
Reading, Rosette.... dis 66⅔&10 %

Bright Wire Goods.
List of June 25, 1883.... dis 70&10&10 @ 70&10&10&10 %

Broilers.—Henis' Self-Basting.

Inch	9	10	9 x 11
Per doz.	$4.50	5.50	6.50

Buckets, Galvanized.

Quarts	10	12	14
Hill's Light Weight, ⅌ doz.	$2.75	3.00	3.25
Hill's Heavy Weight, ⅌ doz.	3.00	3.25	3.75

Bull Rings.
Union Nut Co.... dis 55 %
Sargent's.... dis 66⅔&10 %
Hotchkiss' low list.... dis 30 %
Humason, Beckley & Co.'s.... dis 70&10 %
Peck, Stow & W. Co.'s.... dis 50&10 %
Ellrich Hdw. Co., White Metal, low list.... dis 50 %

Butts
Wrought Brass.... Association price, dis 70 %
Cast Brass, Tiebout's.... dis 40 %
Cast Brass, Corbin's F. Joint. dis 33⅓&10@33⅓&10&10 %
Cast Brass, Loose Joint.... dis 33⅓&10@33⅓&10&10 %
Fast Joint, Narrow.... dis 60&10 %
Fast Joint, Broad.... dis 60&10 %
Loose Joint / Loose Joint, Japanned / Loose Joint, Jap. with Acorns / Parliament Butts / Mayer's Hinges / Loose Pin, Acorns / Loose Pin, Acorns, Japanned / Loose Pin, Acorns, Jap. Pltd. Tips } dis 70&10 @ 70&10&5 %

WROUGHT IRON.
Fast Joint Narrow.... dis 60&10&10 %
Fast Joint, Lt. Narrow.... dis 60&10&10 %
Fast Joint, Broad.... dis 60&10&10 %
Loose Joint, Broad.... dis 60&10&10&5 %
Table Butts, Back Flaps, &c.... dis 60&10&10 %
Inside Blind, Regular.... dis 60&10&10 %
Inside Blind, Light.... dis 60&10&10 %
Loose Pin, Wrt.... dis 60&10&10&5 %
Loose Pin, Light.... dis 60&10&10 %
Bronzed Wrought Butts.... dis 45&5@45&10 %
Spring Hinges:
Geer's Spring and Blank Butts.... dis 33⅓ %
Union Spring Hinge Co.'s.... dis 30 %
American Spring Hinge Co.'s.... dis 30 %
Gem Spring Hinges.... dis 30 %
Barker's Double Acting.... dis 20&10 %
Union Mfg. Co.... dis 25 %
Bommer's.... dis 25 %
Buckman's.... dis 25 %
Empire.... dis 60&10 %
Acme.... dis 70 %
Climax.... dis 50&10 %
Chicago.... dis 30 @ 30&10 %
Blind Butts, Parker.... dis 75&2 %
Blind Butts, Palmer.... dis 50&5&10 %
Blind Butts, Seymour.... dis 70&2 %
Blind Butts, Lull & Porter.... dis 80&10 %
Blind Butts, Nicholson.... dis 45&10 %
Blind Butts, Huffer.... dis 50 %
Blind Butts, Clark's, Nos. 1, 3, 5.... dis 80 %
Blind Butts, Manhattan Hardware Co.... dis
Blind Butts, Sargent's, Nos. 1, 3.... dis 75&10 %
Blind Butts, Sargent's, No. 12.... dis 75&10&10 %
Blind Butts, Reading's Gravity.... dis 75&10 %
Blind Butts, Shepard's "Noiseless," Nos. 50, 60, 65, 45 and 55.... dis 75&10&5 @ 80 %
Blind Butts, Shepard's Champion Gravity, No. 75.... dis 80&10 %
Blind Butts, Shepard's "Gravity," Nos. 1, 3 and 5.... dis 80 @ 80&5 %
North's Automatic Blind Fixtures, No. 2, for Wood, $9; No. 3, for Brick, $10.50.
Shepard's "O. S." and "Acme" Lull & Porter.... dis 75&10&5 %
Shepard's "Queen City" Reversible.... dis 75&10&5 %
Clark's Improved Shutter Hinge, Nos. 0, 1, 1½, 2, 2½, 3.... d's 70 %

Butcher's Cleavers.
Humason & Beckley Mfg. Co.... dis 30&5 @ 30&10 %
Bradley's.... dis 25 @ 30 %
Beatty's.... dis 33⅓&5 %

1	2	3	4	5	6	7	8
$16.50	19.00	21.50	24.00	27.00	30.00	33.50	36.50

New Haven Edge Tool Co.'s.... dis 40 %
Albertson Mfg. Co.... dis 33⅓ @ 33⅓&5 %

Calipers.... See Compasses

Can Openers.
Messenger's Comet.... ⅌ doz $3.00, dis 25 %
American.... ⅌ gross $3.00
Duplex.... ⅌ doz 25¢, dis 15 @ 20 %
Lyman's.... ⅌ doz $3.75, dis 20 %
No. 4, French.... ⅌ doz $2.25, dis 55 @ 60 %
No. 5, Iron handle.... ⅌ gross $6.00, dis 45 @ 50 %
Eureka.... ⅌ doz $2.50, dis 10 %
Sardine Scissors.... ⅌ doz $7.00, dis 55 %
Star.... ⅌ doz $5.00, dis 25&5 %
Sprague, No. 1, $2; No. 2, $2.25; No. 3, $2.50. dis 50&10 %
World's Best, ⅌ gross, No. 1, $12.00; No. 2, $24.00; No. 3, $36.00.... dis 50&10 %
Universal.... ⅌ doz $3.00, dis 35&5 %
Domestic.... ⅌ doz $2.50, dis 45 %
Champion.... ⅌ doz $2.00, dis 50 %

Caps—Percussion. ⅌ 1000.
Hicks & Goldmark's
F. L. Waterproof, 1-10's.... 50¢ / E. B. Trimmed Edge, 1-10's.... 65¢ / E. B. Ground Edge, Central Fire, 1-10's. 70¢ / Double Waterproof, 1-10's.... $1.40 } dis 25 @ 25&5 %
Musket Waterproof, 1-10's.... 50¢
G. D.... 28¢
S. B.... 30¢
S. B. Genuine Imported.... 45¢
Eley's E. B.... 56¢
Eley's D Waterproof, Central Fire.... $1.60
U. M. C., F. C. Trimmed.... 50¢ / U. M. C., F. L. Ground.... 65¢ / U. M. C., Cen. Fire Ground.... 70¢ / U. M. C., Double Waterproof.... $1.40 / Double Waterproof, in 1-10's.... 1.40 } dis 25 @ 25&5 %

Cartridges.
Rim, list Jan. 1, '84.... dis 60&10&2 @ — %
Central Fire, list Jan. 1, '84.... dis 40&10&2 @ — %

Cards.
Horse and Curry.... dis 10 @ 10&10 %
Cotton.... New list, Aug., 1883, dis 10 %
Wool.... " " " dis 10 %

Carpet Stretchers.
Cast Steel, Polished.... ⅌ doz $5.00, dis 30 %
Cast Iron, Steel Points.... ⅌ doz $1.00, dis 15 %
Socket.... ⅌ doz $2.50, dis 25 %
Bullard's.... dis 25 %

Carpet Sweepers.
Bissell No. 5.... ⅌ doz $17.00
Bissell No. 7 New Drop Pan.... ⅌ doz $19.00
Bissell No. 12 Hall Sweeper.... ⅌ doz $42.00
Mystic.... ⅌ doz $17.00
Cottage.... ⅌ doz $15.00
Garland.... ⅌ doz $19.00
Queen.... ⅌ doz $16.00
Queen, with band.... ⅌ doz $18.00
King.... ⅌ doz $30.00

Casters.
Bed / Plate / Shallow Socket } dis 60&5@60&10 %
Deep Socket.... dis 45 @ 50 %
Yale Casters, reduced list May, 1884.... dis 25@25&10 %
Martin's Patent (Phoenix).... dis 45&10 @ 50 %
Payson's Anti friction.... dis 60 %
"Giant" Truck Casters.... dis 10 %
Stationary Truck Casters.... dis 45&10

Cattle Leaders.
Humason, Beckley & Co.'s.... dis 75 %
Sargent's.... dis 66⅔&10 %
Hotchkiss.... dis 30 %
Peck, Stow & W. Co.... dis 50&10 %

Chain.
Trace, 6½-10-2 Exact.... ⅌ pair 79¢ / Trace, 6½-10-3 Exact.... ⅌ pair 70¢ / Trace, 7-10-2 Exact.... ⅌ pair 86¢ } dis 50&10 @ 60 %
Log, Fifth, Stretcher, and other fancy Chains, list Nov. 1, 1884.... dis 50&10 @ 60 %
German Halter Chain, list of June, 1884.... dis 55&5 %
German Coil, list of June, 1881.... dis 55&5 %

American Coil	3-16	¼	5-16	⅜	7-16	½
	$0.8	.06	.05¼	.04¾	.04½	.04¼

Covert Halter, Hitching and Breast.... dis 50&2 %
Covert Traces.... dis 35&2 %
Meneely's Breast, Halter and Hitching.... dis 50&10 %
Meneely's Pat. Sleeve-Snap Breast.... dis 50&10
Oneida Halter Chain (old list).... dis 45 %
Galvanized Pump Chain.... ⅌ ℔ 5½¢ @ 6¢
Jack Chain, Iron.... dis 75 %
Jack Chain, Brass.... dis 70&10 %

Chalk.
White.... ⅌ gro 55¢
Red.... ⅌ gro 65¢
Blue.... ⅌ gro 90¢
White Crayons.... ⅌ gro 12¢ @ 13¢

Chalk Lines.—See Lines.

Cherry Seeders.... ⅌ doz $3.50

Chisels.
Socket Framing and Firmer.... dis 80 %
Douglass & Witherby.... dis 75 @ 75&5 %
Socket Framing and Firmer, Buck Bros.... dis 30 %
Socket Framing and Firmer, Merrill.... dis 60&10&10 %
Socket Firmer, Framing, &c., L. & I. J. White.. dis 25&5 %
Socket Framing Firmer, &c., Crossman.... dis 65&5 %
Tanged Firmers.... dis 50 @ 50&5 %
Tanged Firmers, Butcher's.... $4.75 @ $5.00
Tanged Firmers, Spear & Jackson's.... $5.00 to £
Tanged Firmers, Buck Bros.... dis 30 %

Clamps.
Iron, Providence Tool Co.'s Wrought Iron.... dis 25 %
Iron, Adjustable, Gray's.... dis 20 %
Iron, Adjustable, Lambert's.... dis 20 %
Iron, Adjustable, Snow's.... dis 40&5 %
Iron, Adjustable, Hammer's.... dis 15 %
Iron, Adjustable, Stearns'.... dis 20&10 %
Iron, Cabinet, Sargent's.... dis 70&10 %
Iron, Carriage Makers', Sargent's.... dis 65&10&10 %
Iron, Eberhard Mfg. Co.... dis 40&5 @ 40&10 %
Iron, Warner's.... dis 40&10 %
Saw Clamps.... See Vises

Coal Vases.
Buffalo Palace, S. S. & Co.... dis 33⅓&10 %
Buffalo Common, S. S. & Co.... dis 33⅓&10 %

Cockeyes..... dis 50 %

Cocks, Brass.
Racking.... dis 65&5 %
Globe.... dis 65&5 %
Plain Bibbs.... dis 60&5 %
Ale and Beer.... dis 60&5 %

Coffee Mills.
Board and Box.... dis 40&10&2 @ 45&10&2 %
Selsor's Patent.... $9.50, $10.50, dis 25 %
American, Enterprise Mfg. Co.... dis 20&10 %
The "Swift," Lane Bros.... dis 20&10 %
Webb's Patent.... dis 45 %

Compasses, Dividers, &c.
Compasses.... dis 60&10&10 %
Callipers.... dis 60&10&10 %
Dividers.... dis 60&10&10 %
Bemis & Call Co.'s Dividers.... dis 60&5 %
Bemis & Call Co.'s Compasses & Calipers.... dis 50&5 %
Bemis & Call Co.'s Wing & Inside or Outside. dis 50&5 %
Bemis & Call Co.'s Double.... dis 60 %
Bemis & Call Co.'s (Call's Patent Inside).... dis 30 %
Excelsior.... dis 50 %
Cook's Extension.... dis 25 %
J. Stevens & Co.'s Callipers and Dividers.... d's 25&10 %

Coopers' Tools.
Bradley's.... dis 20 %
Barton's.... dis 20@20&5 %
L. & I. J. White.... dis 20&5 %
Albertson Mfg. Co.... dis 25 %
John Beatty & Co.... dis 33⅓ %

Corkscrews.
Humason & Beckley Mfg. Co.... dis 40 %
Clough's Patent.... dis 33⅓ @ 33⅓&5 %
Howe Pros. & Hulbert.... dis 35 %

Corn Knives and Cutters.
Bradley's.... dis 10 %
Wadsworth's.... dis 25 %

Cradles.
Grain.... dis 40&5&2 %

Crow Bars.
Cast Steel.... ⅌ ℔ 3¼@3½¢
Iron, Steel Points.... ⅌ ℔ 2¾@3¢

Curry Combs.
Fitch's.... dis 50&10 %
Rubber.... ⅌ doz $10.00, dis 25 @ 30 %

Curtain Pins.
Silvered Glass.... net
White Enamel.... net

Cutlery.
Beaver Falls and Booth's.... dis 33⅓ %
Goodel Co., Table.... dis 40 %
Wostenholme.... $7.75 @ $8.00 to £

Dividers.... See Compasses

Dog Collars.
Embossed Gilt, Pope & Stevens' list.... dis 30&10 %
Leather, Pope & Stevens' list.... dis 40 %
Brass, Pope & Stevens' list.... dis 40 %

Door Springs.
Torrey's Rod, regular size.... ⅌ doz $1.45 @ $1.50
Gray's.... ⅌ gro, $20.00, dis 20 %
Bee Rod.... ⅌ gro, $20.00, dis 20 %
Warner's No. 1, ⅌ doz, $2.50; No. 2, $3.30.... dis 40&10 %
Gem (Coil):
No. 1, Large Japanned.... ⅌ doz $4.00 / No. 2, Medium, Japanned.... ⅌ doz 2.75 / No. 3, Small, Japanned.... ⅌ doz 2.00 } dis 50&10 %
Star (Coil)—For Cop'd, Nickel-Plated, &c., see list.
No. 4, ("Shoo Fly") Screen Door size, ⅌ doz $1.50 / No. 5, Screen Door size.... ⅌ doz 2.00 / No. 6, Medium.... ⅌ doz 2.75 / No. 7, Large.... ⅌ doz 4.00 } dis 60 %
Victor (Coil).... dis 50&10&10 %
Champion (Coil).... dis 50&10 @ 50&10&10 %
Philadelphia.... 5 in., $5.00; 8 in., $7.75, dis 35 %
Cowell's.... No. 1, ⅌ doz $18.00; No. 2, $15.00, dis 50 %
Rubber, complete.... ⅌ doz $2.25, dis 20&10 %
Hercules.... dis 50 %
Shaw Door Check and Spring.... dis 25 @ 30 @ 35 %
Elliott's Door Check and Spring.... dis 25 %

Drawing Knives.... dis 80 %
Douglass & Witherby.... dis 75 @ 75&5 %
Merrill.... dis 60&10&10 %
Watrous.... dis 15&10 %
L. & I. J. White.... dis 20&5 %
Bradley's.... dis 35 %
Adjustable Handle.... dis 20@20&5 %

Drills and Drill Stocks.
Blacksmiths'.... each, $1.60 @ $1.70
Blacksmiths' Self-Feeding.... each, $7.50, dis 20 %
Breast, P. S. & W.... dis 40&10 %
Breast, Wilson's.... dis 30&5 %
Breast, Millers Falls.... each, $3.00 dis 25 %
Breast, Bartholomew's.... each, $2.50, dis 25&10 @ 40 %
Ratchet, Merrill's.... dis 20 %
Ratchet, Ingersoll's.... dis 25 %
Ratchet, Whitney's.... dis 20&10 %
Ratchet, Weston's.... dis 20 %
Ratchet, Moore's Triple Action.... dis 25@30 %
Whitney's Hand Drill, Plain, $11.00; Adjustable, $12.00.... dis 20&10 %
Wilson's Drill Stocks.... dis 10 %
Automatic Boring Tools.... each, $1.75 @ $1.85

Drill Chucks.
Morse's Beach Patent.... each, $8.00, dis 20 %
Morse's Adjustable.... each, $7.00, dis 20 @ 20&5 %
Danbury.... each, $8.00, dis 30 @ 30&5 %

Dripping Pans.
Buffalo, S. S. & Co.... ⅌ ℔, 5½¢

Egg Beaters.
Dover.... ⅌ doz., $2.50; ⅌ gro., $27.00
National.... ⅌ doz $4.50, dis 33⅓ %
Family (T. & S. Mfg. Co.).... ⅌ gro, $17.00@$18.00
Standard.... ⅌ gro, $12.00
Kingston.... ⅌ gro, $9.00
Acme.... ⅌ gro, $8.00
Triumph (T. & S. Mfg. Co.).... ⅌ gro, $10.50@$11.50
Advance No. 1.... ⅌ gro $10.50
Advance, No. 2.... ⅌ gro $10.00

Emery.
Regular numbers.... ⅌ ℔ 7¢
Flour and F. F.... ⅌ ℔ 6½¢
For Emery Paper and Cloth, see Sand Paper.

Enameled and Tinned Ware.—See Hollow-Ware.

Escutcheon Pins.
Iron.... dis 50&10 %
Brass.... dis 60 %

Escutcheons.
Door Lock.... Same discounts as Door Locks
Brass Thread.... dis 60 @ 60&10 %
Wood.... dis 25 %

Faucets.
Fenn's.... dis 40 %
Bohren's Patent Rubber Ball.... dis 25 %
Fenn's Cork Stops.... dis 33⅓ %
Star.... dis 60 @ 60&5 %
Frary's Patent Petroleum.... dis 33⅓& 10 %
West's Patent Key.... dis 50 %
Anchor Lock.... dis 45 %
Metallic Key, Leather Lined.... dis 55&10 @ 60&10 %
Cork Lined.... dis 70 @ 70&10 %
J. Sommer's Best Block Tin Key.... dis 40 %
J. Sommer's Cork Lined, 1st quality.... dis 50 %
J. Sommer's Diamond Lock.... dis 40 %
Self-Measuring, Enterprise.... ⅌ doz $36.00—dis 20&10 %
Self-Measuring, Lane's.... ⅌ doz $36.00—dis 25&10 %
Self-Measuring, Victor.... ⅌ doz $36.00—dis 25&10 %

Felloe Plates.... ⅌ ℔ 6½¢ net

Files.
J. & Riley Carr.... New list, April 1, 1883, dis 15 %
J. & Riley Carr Horse Rasps.... dis 10 %
Moss & Gamble.... New list, dis 15 %
Butcher.... New list, dis 20 %
Best Files of domestic make, according to brand.... dis 60 @ 60&10&5 %
Lower Grade domestic Files.... dis 60&10&10 @ — %
New Am. File Co., Pat. Tapers.... dis 50 %
J. B. Smith Co. Screw Tang Files.... dis 60 %
J. B. Smith Co. Horse and Wood Rasps.... dis 50&10 %
Stubs.... dis 25 @ 30 %

Fluting Machines.
Knox, 4½-inch Rolls.... $3.25 each / Knox, 6-inch Rolls.... $3.60 each } dis 35 %
Eagle, 3½-inch Roll.... $2.15, dis 35 %
Eagle, 5½-inch Roll.... 2.85, dis 35 %
Crown, 4½ in., $3.50; 6-in, $4.00; 8-in., $6.50 each, dis 35 %
Crown Jewel.... 6-in., $3.50 each, dis 35 %
American, 5-in., $3; 6-in., $3.40; 7-in., $4.50 each, dis 35 %
Domestic Fluter.... $1.50 each, net
Geneva Hand Fluter, White Metal.. ⅌ doz $12, dis 25 %
Crown Hand Fluter, Nos. 1, $15; 2, $12.50; 3, $10.00, ⅌ doz.... dis 30 %
Shepard Hand Fluter, No. 85.... ⅌ doz $15.30, dis 40 %
Shepard Hand Fluter, No. 110.... ⅌ doz $11, dis 40 %
Shepard Hand Fluter, No. 95.... ⅌ doz $8, dis 40 %
Clark's Hand Fluter.... ⅌ doz $15.00, dis 33⅓ %
Combined Fluter and Sad Iron.... ⅌ doz $15.00, dis 30 %
Buffalo.... ⅌ doz $10.00 dis 10 %

Fluting Scissors.... dis 45 %

Fly Traps.
Paragon.... ⅌ doz $2.00

Forks.
Hay, Manure and Spading, first quality.... dis 60&10 %
Plated, see Spoons.

Freezers.—See Ice-Cream Freezers.

Fruit and Jelly Presses.
Enterprise Mfg. Co.... dis 20&10 @ 30 %

Fry Pans.
Central Stamping Co.'s list.... dis 33⅓&2 %

No	0	1	2	3	4	5	6	7	8
⅌ doz.	$1.50	1.75	2.00	2.25	2.50	2.75	3.25	3.75	4.25

S. S. & Co.... dis 33⅓&2 %
"Acme".... dis 60 %

Gauges.
Marking.... dis 60&10 %
Wire.... dis 10&10 %
Wire, Wheeler, Madden & Co.... dis 10 %

Gimlets.
Nail and Spike.... dis 50&10&5 %
"Eureka" Gimlets.... dis 40&10 %
"Diamond" Gimlets.... dis 40&10 %
Double Cut, Shepardson's.... dis 45 %
Double Cut, Ives'.... dis 50 %
Double Cut, Douglass'.... dis 40 %
"Bee".... ⅌ gross $12, dis 25 %

Glue Pots.
Tinned and Enameled.... dis 40&5@40&10 %
Family, Howe's "Eureka".... dis 40 %
Family, L. F. & C.'s "Handy".... dis 45 %

Grindstone Fixtures.
Sargent's Patent.... dis 70&10&10 %
Reading Hardware Co.... dis 35&10 %

Gun Wads.
U. M. C. & W. R. A.—B. E., 11 up.... $1.60 / U. M. C. & W. R. A.—B. E., 9&10.... 1.85 / U. M. C. & W. R. A.—B. E., 7&8.... 2.10 / U. M. C. & W. R. A.—P. E., 11 up.... 2.50 / U. M. C. & W. R. A.—P. E., 9&10.... 3.20 / U. M. C. & W. R. A.—P. E., 7&8.... 4.00 } dis 10 %
Eley's B. E., 11 up.... 1.75
Eley's P. E., 11 @ 20.... 2.80

Hack Saws.
Griffin's Hack Saws, complete.... dis 40&10 %
Griffin's Hack Saw, Blades only.... dis 40&10 %
Star Hack Saws and Blades.... dis 25 %

Halters.—Covert's Pat. ½ Jute.... dis 50&10 %
Covert's Hemp Horse and Cattle Ties.... dis 50&10 %
Covert's Jute Horse and Cattle Ties.... dis 60 %
Meneely's Pat. Adjustable Hemp and Jute. dis 50&10 %
Meneely's Hemp and Jute Horse and Cattle Ties.... dis 50&10 %

Hammers.—Maydole's.... dis 15&10 %
Cheney's, new list, March, 1883.... dis 20&10 %
Hartford Hammer Co.'s Nail Ham's.. dis 25&5@25&10 %
Buffalo Hammer Co.... dis 30 @ 35 %
C. Hammond & Son.... dis 40&10 %
Humason & Beckley.... dis 15 @ 25 %
Verree.... dis 5 %
Magnetic Tack, Nos. 1, 2, 3, $1.25, 1.50 and 1.75. dis 25&10 %
Nelson Tool Works.... dis 40&10 %
Warner & Nobles.... dis 10 %
Yerkes & Plumb, A. E. Nail.... dis 40&10 %
Wilkinson's Smiths'.... 10½¢ @ 11¢ ⅌ ℔
Heavy Hammers and Sledges.... dis 60&10 %

Hand Cuffs and Leg Irons.
Providence Tool Co., Hand Cuffs, $15.00 ⅌ doz.. dis 10 %
Providence Tool Co., Leg Irons, $25.00 ⅌ doz.... dis 10 %
Tower's.... dis 25 %
Daley's Improved Hand Cuffs: 2 Hands, Polished, ⅌ doz, $48; Nickeled, $57; 3 Hands, Polished, ⅌ doz, $72; Nickeled, $84.... dis 20 %

Handles.—Door or Thumb Latches.

Nos.	0	1	2	3	4	
Per doz.	$0.90	1.00	1.18	1.35	1.50	dis 60&10&10 %

Roggin's Latches.... ⅌ doz. 32¢ @ 37¢ net
Bronze Iron Drop Latches.... ⅌ doz. 70¢ net
Jap'd Store Door Handles—Nuts, $1.62; Plate, $1.10; no Plate, $0.88.... net
Barn Door.... ⅌ doz. $1.40, dis 10&10 %
Wrought Chest.... dis 70 %
Surface Chest.... dis 70 %
Flush Chest.... dis 70 %
Lifting.... dis 70 %
Saw and Plane.... dis 40&10 %
Boynton's Loop Saw Handles.... 50¢, dis 60 %
Hammer and Hatchet.... dis 20 %
Brad Awl.... ⅌ gross $2.00
Hickory Firmer Chisel, assorted.... ⅌ gross $4.50 / Hickory Firmer Chisel, large.... ⅌ gross 5.00 / Apple Firmer Chisel, assorted.... ⅌ gross 5.00 / Apple Firmer Chisel, large.... ⅌ gross 6.00 / Socket Firmer Chisel, assorted.... ⅌ gross 3.00 / Socket Framing Chisel, assorted.... ⅌ gross 5.00 } dis 40
File, assorted.... ⅌ gross 2.75 / Auger, assorted.... ⅌ gross 5.00 / Auger, large.... ⅌ gross 7.00 } dis 25&10 %
Patent Auger, Ives'.... dis 25 %
Patent Auger, Douglass'.... ⅌ set $1.25 net
Patent Auger, Swan's.... ⅌ set $1.00 net

Hangers.
Barn Door, old patterns.... dis 60&10&10 %
Barn Door, New England.... dis 70 %
Climax (Anti-Friction).... dis 55 %
Zenith Anti-Friction Wood Track.... dis 55 %
Reed's Steel Arm.... dis 40 %
Challenge.... dis 50 %
"Champion" Medina Mfg Co.... dis 60 %
Sterling Improved (Anti-Friction).... dis 65&10 %
Double Cut, Hartwell's.... dis 40&10 %
Victor, No. 1, $15; No. 2, $16.50; No. 3, $18... dis 50&2 %
Cheritree.... dis 50&5 %
Kidder's.... dis 50&10 %
U. S.... dis 60&10 %
The "Boss".... dis 60 %
Best Anti-Friction.... dis 60 %
Duplex (Wood Track).... dis 60 %
Terry's Patent.... ⅌ doz. pr., 3½ in. $10; 5 in., $12.... dis 40&5 %
Cronk's Patent.... No. 4, $12; No. 5, $14.40; No. 6, $18.... dis 50&5 @ 50&10 %
Wood Track, Iron Clad.... ⅌ ft. 8¢, dis 50&5 @ 50&10 %
Architect.... ⅌ set $6.00, dis 20 %
Eclipse.... dis 20&10
Felix.... ⅌ set $4.50, dis 20 %
Hamilton Wrought.... dis 50 @ 50&5 %
Richards', (lots of 50 sets dis 20&10&10 %).. dis 20&10 %
Lane's Steel Anti-Friction.... dis 30&10 %
The Ball Bearing Door Hanger.... dis 20&10 @ 25&10 %
Warner's Patent.... dis 20 %
Stearns' Anti-Friction.... dis 20 %

Harness Snaps.
Anchor (T. & S. Mfg Co.).... dis 65 %
Henshaw's, list of 1½ changed to $14.00.... dis 65 %
Judd's, list of 1½ changed to $14.00.... dis 65 %
Fitch's (Bristol), list of 1½ changed to $14.00... dis 65 %
Hotchkiss.... dis 10 %
Andrews.... dis 50 %
Sargent's Patent Guarded.... dis 70&10&10 %
German, old list.... dis 75 %
German, Sargent's new list.... dis 60&10 @ 60&10&10 %
Covert.... dis 50 %
Covert, New Patent, new list.... dis 50 %
Covered Spring.... dis 66⅔&10 %
Meneely's Pat. Safety, new list.... dis 60&10 %
Meneely's Pat. Guard, new list.... dis 60&10 %
Meneely's Pat. Chain Link.... dis 60&10 %

Hatchets.
Isaiah Blood.... dis 35 @ 40 %

	Nos.				
Shingling,	Nos. 1 2 3	⅌ doz	$7.25	$8.00	$8.75
Claw,	Nos. 1 2 3	⅌ doz	7.75	8.50	9.25
Lathing,	Nos. 1 2 3	⅌ doz	7.50	8.00	8.50

Hunt's.... 40 %

	Nos.				
Shingling,	Nos. 1 2 3	⅌ doz	$7.25	$8.00	$8.75
Claw,	Nos. 1 2 3	⅌ doz	7.75	8.50	9.25
Lathing,	Nos. 1 2 3	⅌ doz	7.50	8.25	9.00

Hurd's.... dis 40&5 @ 45 %

	Nos.				
Shingling,	Nos. 1 2 3	⅌ doz	$8.00	$8.50	$9.00
Claw,	Nos. 1 2 3	⅌ doz	9.00	9.50	10.00
Lathing,	Nos. 1 2 3	⅌ doz	8.00	8.50	9.00

Yerkes & Plumb.... dis 40&10@40&10&5 %

	Nos.				
Shingling,	Nos. 1 2 3	⅌ doz	$7.50	$8.00	$8.50
Claw,	Nos. 1 2 3	⅌ doz	8.00	8.50	9.00
Lathing,	Nos. 1 2 3	⅌ doz	7.50	8.00	8.50

Underhill Edge Tool Co.... dis 40 %

	Nos.				
Shingling,	Nos. 1 2 3	⅌ doz	$7.25	$8.00	$8.75
Claw,	Nos. 1 2 3	⅌ doz	7.75	8.50	9.25
Lathing,	Nos. 1 2 3	⅌ doz	7.50	8.25	9.00

Lathing, Solid Steel.... dis 30 @ 35 %
No. 1, $12. Boston Pattern, $18.
C. Hammond & Son.... dis 40&10 %

	Nos.				
Shingling,	Nos. 1 2 3	⅌ doz	$8.00	$8.50	$9.00
Lathing,	Nos. 1 2 3	⅌ doz	8.00	8.50	9.90
Claw,	Nos. 1 2 3	⅌ doz	8.50	9.00	9.50
Broad,	Nos. 1 2 3	⅌ doz	11.00	13.50	16.00

Simmons.... dis 35 @ 40 %

	Nos.					
Shingling,	Nos. 0 1 2 3	⅌ doz	$7.50	$8.00	$8.50	$9.00
Claw,	Nos. 0 1 2 3	⅌ doz	....	8.50	9.00	9.50
Lathing,	Nos. 0 1 2 3	⅌ doz	....	8.00	8.50	9.00
Broad,	Nos. 1 2 3 4	⅌ doz	9.00	10.00	12.00	14.00
Broad,	Nos. 5 6 7 8	⅌ doz	16.00	18.00	20.00	22.00

Collins.... dis 10 %

	Nos.				
Shingling,	Nos. 1 2 3	⅌ doz	$5.50	$6.00	$6.50
Claw,	Nos. 1 2 3	⅌ doz	6.00	6.50	7.00
Lathing,	Nos. 1 2 3	⅌ doz	5.50	6.00	6.50

Peck's Champion Blade.... dis 40&10 @ 40&10&5 %

	Nos.				
Shingling,	Nos. 1 2 3	⅌ doz	$8.00	$8.50	$9.00
Lathing,	Nos. 1 2 3	⅌ doz	8.00	8.50	9.00
Claw,	Nos. 1 2 3	⅌ doz	9.00	9.50	10.00
Half,	Nos. 1 2 3	⅌ doz	8.00	8.50	9.00
Broad,	Nos. 1 2 3	⅌ doz	10.00	11.00	13.00
Broad,	Nos. 4 5 6	⅌ doz	14.50	16.50	18.00
Ax Pattern,	Nos. 1 2 3	⅌ doz	10.00	11.00	12.00

Hay Knives.
"Lightning".... ⅌ doz $18, dis 10 @ 10&5 %
Electric.... ⅌ doz $12.50 net
Wadsworth's.... dis 35&5 %
Heath Patent.... ⅌ doz $13.50 net

Hinges.
Gate, Western.... ⅌ doz $4.40, dis 55 %
Gate, N. E.... ⅌ doz $7.00, dis 55 %
Gate, N. E. Reversible.... ⅌ doz $5.20, dis 55 %
Gate, Clark's, Nos. 1 2 3.... dis 60&10&2 %
Gate, N. Y. State.... ⅌ doz $5.00, dis 55 %
Gate, Automatic.... ⅌ doz $12.50, dis 50 %
Gate, Common Sense.... ⅌ doz pair $4.50, dis 50 %
Gate, Seymour's.... dis 45&10 %
Gate, Shepard's, Nos. 1, 2, 10 and 20.... dis 60&10&10 %
Gate, Shepard's, No. 3.... dis 60&10&5 %
Reed's Latch and Hinge.... ⅌ doz sets $12, dis 50 %
Rolled Blind Hinges.... dis 60&10 %
Rolled Plate.... dis 70 %
Rolled Raised.... dis 70 %
Plate Hinges / "Providence" } 8, 10 & 12 in., ⅌ ℔.... 4¢; over 12 in., ⅌ ℔.... 3¢
Screw Hook and Strap } 8, 10, 12 in., ⅌ ℔.... 3½@3⅝¢; 14 to 36 in. ⅌ ℔.... 2¾@2⅞¢
Heavy Welded Hook } 8 to 12 in., ⅌ ℔.... 3½@3⅝¢; 14 in. & up, ⅌ ℔.... 2¾@2⅞¢
Screw Hook and Eye.... ½ in.... ⅌ doz $1.50 / ⅝ in.... ⅌ doz $2.45 / ¾ in.... ⅌ doz $3.80 } dis 10 %
Wrought Strap and T.... dis 65&10&2 % cash

Hoes.
Garden, Mortar, &c.... 1st quality, dis 60&10 %
Planter's, Cotton, &c.... 1st quality, dis 60&10 %
Planter's, Scovil Pattern.... dis 60&10 %
Magic.... ⅌ doz $4.75
Grub.... ⅌ doz $10.50 @ $12.00, dis 60&2 %

Hog Rings and Ringers.
Perfect Rings.... ⅌ doz boxes $2
Perfect Ringers.... ⅌ doz. $3
Blair Hog Ringers.... ⅌ doz $2.40

Hoisting Apparatus
"Moore's" Hand Hoist, with Lock Brake.... dis 15 %
"Moore's" Differential Pulley Block.... dis 20 %

Hollow-Ware.
Stove Hollow-Ware, Ground.... dis 50&5@50&10&5 %
Stove Hollow-Ware, Unground.... dis 60@60&10 %
Enameled and Tinned Hollow-Ware—
Kettles.... dis 60&5@60&10 %
Oval Boilers, Saucepans and Glue Pots.... dis 40&5@40&10 %
Gray Enameled Ware.... dis 45 %
Rustless Hollow-Ware.... dis 50&5@50&10 %
Galvanized Tea-Kettles—

Inch	6	7	8	9
Each	50¢	55¢	60¢	70¢

Hooks.
Bird Cage, Sargent's list.... dis 66⅔&10 %
Bird Cage, Reading.... dis 60&10@60&10&10 %
Cotton.... ⅌ doz $4.00, dis 50 %
Cotton Patented (N. Y. Mallet & Handle W'ks), dis 30 %
Cotton (Humason & Beckley Mfg. Co.).. dis 50&10@60 %
Belt.... dis 80@80&5 %
Bench Hooks.... See Bench Stops
Clothes Line, Sargent's list.... dis 66⅔&10 %
Clothes Line, Reading list.... dis 66⅔&10 %
Ceiling, Sargent's list.... dis 60&10&10&10 %
Harness, Reading list.... dis 60&10&10 %
Coat and Hat, Sargent's list.... dis 60&10&10&10 %
Coat and Hat, Reading.... dis 60&10&10 %
Wire Coat and Hat, Gem.... dis 40 %
Wire Coat and Hat, Miles'.... dis 70 %
Tassel and Picture (T. & S. Mfg. Co.).... dis 50 %
Wrought Staples and Hooks and Staples.... dis 80&10@80&10&5 %
Wire Screw Hooks and Eyes.. See Bright Wire Goods
Grass and Bush.... dis 55 @ 60 %
Whiffletree—Patent.... dis 55 %
Hooks and Eyes—Malleable Iron.... dis 70 %
Hooks and Eyes—Brass.... dis 60&10&10 %
Fish Hooks, American.... dis 40&10 %

Horse Nails.

		Nos. 5	6	7	8	9	10	
Ausable	⅌ ℔	31¢	28¢	26¢	25¢	24¢	23¢	dis 25&10 %
Clinton, Pl'n.	⅌ ℔		23¢	21¢	20¢	19¢	18¢	dis 25&10 %
Clinton, Fin.	⅌ ℔		24¢	22¢	21¢	20¢	19¢	dis 25&10 %
Essex	⅌ ℔	31¢	28¢	26¢	25¢	24¢	23¢	dis 40 %
Putnam	⅌ ℔	27¢	24¢	22¢	21¢	20¢	19¢	dis 5&7 %
Vulcan	⅌ ℔	26¢	23¢	21¢	20¢	19¢	18¢	dis 12½ %
Northwest'n.	⅌ ℔	28¢	25¢	23¢	22¢	21¢	20¢	dis 10&5&5 %
Globe	⅌ ℔	26¢	23¢	21¢	20¢	19¢	18¢	dis 10&5&5 %
A. C.	⅌ ℔	28¢	25¢	23¢	22¢	21¢	20¢	dis 10&10&5 %
C. B.-K.	⅌ ℔	28¢	25¢	23¢	22¢	21¢	20¢	dis 10&10 %
Champlain	⅌ ℔	31¢	28¢	26¢	25¢	24¢	23¢	dis 25&10 %
New Haven	⅌ ℔	31¢	28¢	26¢	25¢	24¢	23¢	dis 25&10 %
Bridgewater	⅌ ℔	26¢	23¢	21¢	20¢	19¢	18¢	dis 30 %
Saranac	⅌ ℔	26¢	23¢	21¢	20¢	19¢	18¢	dis 25 @ 30 %
Champion	⅌ ℔	28¢	25¢	23¢	22¢	21¢	20¢	dis 10&10&5 %
Capewell	⅌ ℔	31¢	28¢	26¢	25¢	24¢	23¢	dis 33⅓&5 %
Star	⅌ ℔	26¢	23¢	21¢	20¢	19¢	18¢	dis 10&10 %

Horse Shoes
Burden, at factory.... ⅌ keg $3.60
R. I. Horse Shoe Co., Perkins' Imp., at factory.... ⅌ keg $3.60
Walker's Forged.... ⅌ keg $3.60
Mule Shoes, at factory.... ⅌ keg $4.60

Hose, Rubber.... 70 @ 70&5 %
N. Y. Belting & Packing Co., Standard.... dis 50&10@50&10&5 %

Ice Awls, Chisels, &c.
American Ice Chisel Pol'd.... ⅌ doz $3.00, dis 20 %
National Ice Chisel.... ⅌ doz $6.25, dis 20 %
Novelty Ice Breakers.... ⅌ doz $6.25, dis 20 %
White's Sliding Head Picks.... ⅌ doz $2.50, dis 40 %
Dunlap's Ring Picks.... ⅌ doz $2.00, dis 25 %
Wood Head Picks Sargent's.... ⅌ doz $1.60, dis 50&10 %
Iron Head Picks, Sargent's.... ⅌ doz $1.25, dis 50&10 %
Ice Mallets, Pick in handle.... ⅌ doz $2.00, dis 15 %
Ice Axes, Small Cast or Mall.... ⅌ doz $1.25, dis 20&10 %
Combination Ice Tools.... ⅌ doz $2.00 net
Acme Ice Pick and Tongs.... ⅌ gross $55.00, dis 50&10

Ice Cream Freezers.
Buffalo Champion, S. S. & Co.... dis 60&2

Ice Tongs.
Champion, S. S. & Co.... ⅌ doz $4.00, dis 25&10 %
Family.... ⅌ doz $2.75, dis 20 %

Jack Screws.
Millers Falls list.... dis 40&10 @ 50 %

Kettles.
Brass, 7 to 17 in. inclusive.... ⅌ ℔ 20¢ Net
Brass larger than 17 inches.... ⅌ ℔ 22¢ Net
Enameled and Tea Kettles.... See Hollow-Ware

Knives.
Ames' Butcher Knives.... dis 25 %
Nichols' Butcher Knives.... dis 40&10 %
Ames' Shoe Knives.... dis 15 @ 15&5 %
Ames' Bread Knives.... ⅌ doz $1.50, dis 15 @ 15&5 %
Moran's Shoe and Bread Knives.... dis 20 %
Goodell Co., Butcher, Shoe, Bread, &c.... dis 40 %
Hay and Straw.... See Hay Knives
Table and Pocket.... See Cutlery

Knobs.
Carriage, Japanned.... ⅌ gross 80¢, dis 60&10 %
Base, Rubber Tip.... dis 70&10&5 %
Hemacite Door Knobs, new list.... dis 35&5 %
Door Mineral / Door Por. Jap'd / Door Por. Plated / Door Por. } Same discounts as Door Locks.
Furniture Plain.... 75¢ gross inch, dis 10 %
Furniture, Wood Screws.... dis 25&10 %
Picture, Judd's.... dis 60&10&10 %
Picture, Sargent's.... dis 65&10 %
Hemacite, Picture.... dis 35 %
Shutter, Porcelain.... dis 65&10 %

Ladles.
Melting, Sargent's.... dis 60&10 %
Melting, Reading.... dis 40&10 %
Melting, Monroe's Patent.... ⅌ doz. $4.00, dis 40 %
Melting, P. S. & W.... dis 30&10 %
Melting, Warner's.... dis 30 %

Lanterns.
Tubular, Standard No. 0, ⅌ doz.... $6.75 @ $7.00
Tubular, Standard No. 1, ⅌ doz.... 8.50 @ 9.00
Tubular, Lift Wire, No. 0, ⅌ doz.... 8.50
Tubular, Lift Wire, No. 1, ⅌ doz.... 10.00
Guards for Tubulars, add ⅌ doz.... .25
Police, Small, $6.00; Medium, $7.25; Large, $9.75.... dis 10@15 %
Porter's Tin R. R.... $10 dis 20 %
Owl.... $9, dis 20@25 %

Lawn Mowers.
Excelsior Roller.... dis 40&3 %
Excelsior Side Wheel.... dis 40&10&3 %
Clipper.... dis 40&10&3 %
Philadelphia.... dis 40&10&3 %

Lemon Squeezers.
Porcelain Lined.... ⅌ doz. $6.00, dis 35&5 %
Wood.... ⅌ doz. $3.00, dis 35 %
Eureka, Tinned.... ⅌ doz. $8.00, dis 10 %
Dunlap's Improved.... ⅌ doz. $3.75, dis 20 %
Sammis'.... No. 1, $5; 2, $9; 12, $18 ⅌ doz., dis 25&10 %
Townsend's Patent.... $6.00 ⅌ doz., dis 33⅓ %
Jennings' "Star".... $3.00 ⅌ doz. net
The "Boss".... ⅌ doz. $4.00, dis 10&10 %
Dean's Nos. 1, ⅌ doz. $15.00; 2, $8.00; 3, $5.50.... dis 55 %
Little Giant.... dis 50 %
Acme.... ⅌ gross $55.00, dis 50 %

Lines.
Cotton and Linen Fish, Draper's.... dis 50 %
Draper's Chalk.... dis 60 %
Draper's Mason's Linen, 84 ft., No. 1, $1.25; No. 2, $1.75; No. 3, $2.25; No. 4, $2.75; No. 5, $3.25.. dis 25 %
Cotton Chalk.... dis 55 %
Silver Lake, Braided, Nos. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ⅌ gross.... dis 25
Masons' Linen, No. 3½, $1.50; No. 4, $2; No. 4½, $2.50.... Net
Masons' Colored Cotton.... dis 45 %
Wire Clothes, No. 18, $3.50; No. 19, $3.00; No. 20, $2.50.

Locks, Padlocks, Cabinet Locks, &c.
Door Locks, new list, Dec. 10, 1884. Some numbers changed Feb. 5, 1885.... dis 66⅔&2 @ — %
Reading Hardware Co. (list Feb. 2, 1885).... dis 70 %
Perkins' Burglar Proof.... dis 60&25 %
Plate.... dis 33⅓&2 %
F. Many's "Extension Cylinder".... $10.50 ⅌ doz net
Barnes Mfg. Co.... dis 40 %
Yale Flat Key.... dis 40 %
Dietz Flat Key.... dis 30 %
Stoddard.... dis 30 %
Langstroth & Crane's:
Round Key Latches.... dis 40&10 %
Flat Key Latches.... dis 33⅓&10 %
Cabinet, Eagle / Cabinet, Gaylord / Cabinet, Parker / Cabinet, Corbin } Changes made in list price of some numbers March 10, 1884, and Jan. 1, 1885, dis 40&2 % cash.
Cabinet, A. E. Deitz.... dis 30@40 %
Cabinet, Stoddard Lock Co.... dis 30 %
A. E. Deitz, Flat Key Drawer.... dis 30@40 %
Yale new list.... dis 40 %
"Shepardson" or "U. S.".... dis 35 %
"Felter" or "American".... dis 40&10 %
Eagle and Corbin Trunk.... dis 25&2 %
"Champion" Night Latches.... dis 40 %
"Champion" Cabinet and Combination.... dis 33⅓ %
Romer's.... dis 25 %

PADLOCKS.
Russell & Erwin / Mallory, Wheeler & Co. / Nimick & Brittan Mfg. Co. / Wm. Wilcox & Co. / Norwich Lock Co. } New list Dec. 23, 1884. dis. 66⅔&2 @ — %.
Yale Lock Mfg. Co.'s.... dis 40
Eagle.... dis 25&2 %
Romer's, Nos. 0 to 91.... dis 40 %
Romer's, Nos. 200 to 505.... dis 25 %
A. E. Dietz.... dis 35 %
Hotchkiss.... dis 30 %
"Star".... dis 15 %
"Horse Shoe," ⅌ doz., $9.... dis 40 %
Fraim's Pat. Scandinavian, new list (low).... dis 60 %
Barnes Mfg. Co.... dis 40 %
Nock's.... dis 30 %
Brown's Patent.... dis 25 %
Scandinavian.... dis 90 %
"Champion" Padlocks.... dis 33⅓

Lumber Tools.
Ring Peavies, "Blue Line" Finish.... ⅌ doz $20.00
Ring Peaves, Common Finish.... ⅌ doz $18.00
Steel Socket Peavies.... ⅌ doz $21.00
Mall. Iron Socket Peavies.... ⅌ doz $19.00
Cant Hooks, "Blue Line" Finish.... ⅌ doz $16.00
Cant Hooks, Common Finish.... ⅌ doz $14.00
Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish.... ⅌ doz $16.00
Cant Hooks, Mall. Socket Clasp, Common Finish.... ⅌ doz $14.50
Cant Hooks, Clip Clasp, "Blue Line" Fin. ⅌ doz $14.00
Cant Hooks, Clip Clasp, Common Finish.. ⅌ doz $12.00
Hand Spikes.... ⅌ doz 6 ft., $15.00; 8 ft., $20

	12 ft.	14 ft.	16 ft.	18 ft.	20 ft.
Pike Poles, Pike & Hook, ⅌ doz.	$11.50	12.50	14.50	17.50	21.50
Pike Poles, Pike only, ⅌ doz	10.00	11.00	13.00	16.00	20.00
Pike Poles, not Ironed, ⅌ doz.	6.00	7.00	9.00	12.00	16.00
Setting Poles, ⅌ doz.	14.00	15.00	17.00		

Swamp Hooks.... ⅌ doz $18.00
Landing Blocks.... ⅌ doz $22.50
Skidding Tongs.... ⅌ doz $51.00
Log Binders.... ⅌ doz $26.00
Bended Boot Calks, 1 to 5 M, dis 25 %; 5 to 10 M, dis 30 %
Square Steel Boot Calks.... dis 40 %
Chain Rafting Dogs.... ⅌ 100 $12.50
Ring Rafting Dogs.... ⅌ 100, med., $10.00; large, $12.00
Timber Grapples.... ⅌ doz $30.00

Lustro.
Four-ounce bottles ......⅌ doz, $1.75 ; ⅌ gro. $17.00 net

Mallets.
Hickory......dis 10&10&5 %
Lignumvitæ......dis 10&10&5 %
Penfield Block Co., Lignumvitæ and Hickory..dis 30 %

Mattocks.
Regular list......dis 60&10@60&10&5 %

Meat Cutters.
Dixon's (P. S. &W.) Nos 1 2 3 4
⅌ doz..$14.00 17.00 19.00 30.00—dis 45 %
Miles' Challenge......Nos. 1 2 3
⅌ doz..$22.00 30.00 40.00—dis 45 %
Woodruff's (P. S. & W.)......Nos. 100 150
⅌ doz. $15.00 18.00—dis 45 %
Hales'.... ......Nos. 11 12 13
⅌ doz...$27.00 33.00 50.00 { dis 60&10&2@ 60&10&10&2 %
Draw Cut..Nos. 5 2 6 8 10
Each..$50.00 75.00 80.00 225.00 400.00—dis 20 %
American......dis 35 %
Nos....... 1 2 3 4 B
Each.......$5.00 7.00 10.00 25.00 50.00 60.00
Enterprise......dis 25@20&10 %
Nos.......... 10 12 22 32 42
Each.........$3.00 2.50 4.00 6.00 10.00
Kieser's No. 55......$40 ⅌ doz, dis 40 @ 40&5 %
Kieser's Gem......$25 ⅌ doz, dis 40 @ 40&5 %
Kieser's Monarch......$45 ⅌ doz, dis 40 @ 40&5 %
Kieser's Butcher......$40 each, dis 20 @ 20&5 %
Pennsylvania......dis 40&10 %
Nos....... 1 2 3 00
⅌ doz......$24.00 28.00 36.00 28.00
Beef Shavers Enterprise Mfg. Co.)......dis 20&10
Chadborn's Smoked Beef Cutter......⅌ doz, $60.00

Mincing Knives.
Am. (2d quality), ⅌ gro, 1 blade, $7; 2 blades, $12; 3 blades, $18......Net
Lothrop's......dis 20&10 %
Smith's, ⅌ doz, Single, $2.00; Double, $3....dis 40@45 %
Cowles Hdw. Co......dis 60 %

Molasses Gates.—Stebbins' Pat's......dis 75&5 %
Stebbins' Genuine......dis 75 %
Stebbins' Tinned Ends......dis 40&10 %
Chase's Hard Metal......dis 50&10 %
Bush's......dis 20 %
Lincoln's Pattern......dis 70&10 %
Weed's......dis 20&10 %
Boss Nos.. 1 2 3 4
$7.00 8.00 9.00 10.00..⅌ doz, dis 60&10&10 %

Money Drawers.—⅌ doz., $18.

Nails......See Trade Report
Wire Nails......dis 50&10 @ 50&10&5 %
Wire Carpet Nails......See Tacks

Nail Puller.
Curtiss Hammer......⅌ doz $9.00 net
Giant, No. 1......⅌ doz $30.00, dis 10 %

Nuts and Washers.
In lots less than 100 ℔, ⅌ ℔ add ½¢ to list 1 ℔ boxes, 1¢ to list.
Square Nuts......9½¢ off list
Hexagon......10½¢ off list
Washers......9½¢ @ 10¢ off list

Nut Crackers.
Table (Humason & Beckley Mfg. Co.)......dis 40 %
Blake's Pattern......⅌ doz $2.00. dis 10 %
Turner & Seymour Mfg. Co......dis 50 %

Oakum.
Government......⅌ ℔ 7¼@7½¢
U. S. Navy......⅌ ℔ 6¾@7 ¢
Navy......⅌ ℔ 5¾@6 ¢

Oilers.
Zinc and Tin......dis 60&10&5 %
Brass and Copper......dis 50&10 %
Malleable (Hammer's), No 1, $3.60; No. 2, $4.00; No. 3, $4.40 ⅌ doz......dis 10 %
Prior's Patent or "Paragon" Zinc dis 60&5 @ 60&10 %
Prior's Patent or "Paragon" Brass......dis 50 %
Olmstead's Tin and Zinc......dis 60 %
Olmstead's Brass and Copper......dis 50 %
Broughton's Zinc......dis 60 %
Broughton's Brass......dis 50 %

Packing, Steam.
N. Y. Belting & Packing Co......dis 50 @ 50&10 %
American Packing......11¢
Russia Packing......14¢
Italian Packing......16¢
Cotton Packing......15 @ 18¢

Peach Parers.
Rotary Knife......⅌ doz $15, dis 10 %
Diamond State......⅌ doz $15, dis 10 %

Pencils.
Faber's Carpenters'......high list, dis 50 %
Faber's Round Gilt......⅌ gro $5.25 net
Dixon's Lead......⅌ gro $4.50 net
Dixon's Lumber......⅌ gro $6.75 net
Dixon's Carpenters'......dis 40&10 %

Picks.
Railroad, 5 to 6, $11.00; 6 to 7, $12.dis60&10@60&10&5 %
Adze Eye, 5 to 6, $12.00; 6 to 7, $13.dis60&10@60&10&5 %

Picture Nails.
Brass Head, Sargent's list......{ dis 50&10&10 @ 50&10&10 %
Brass Head, Combination list......dis 50&10 %
Porcelain Head, Sargent's list..dis 50&10 @ 50&10&10 %
Porcelain Head, Combination list......dis 40&10 %
Niles' Patent......dis 40 %

Pinking Irons......⅌ doz 65¢ net

Planes and Plane Irons.
Bench, First Quality......dis 20&2 % } Small extras
Bench, Second Quality....dis 25&2 % } sometimes given
Molding......dis 15&2 % } by jobbers
Bailey's (Stanley R. & L. Co.)......dis 20&10 %
The Stanley (S. R. & L. Co.)......dis 20&10 %
Bailey's "Victor"......dis 20&10 %
Steer's Iron Planes......dis 35 %
Meriden Mal. Iron Co.'s Iron Planes......dis 20&10 %
Davis's Iron Planes......dis 20&10 %
Plane Irons......dis 20&10 %
Plane Irons, Butcher's......$5.00 @ $5.25 to £
Plane Irons, Buck Bros......$5.00 to £
Plane Irons, The Globe Mfg. Co., "Baldwin Iron"......dis 33⅓ %
L. & I. J. White......dis 25 %

Pliers and Nippers.
Button's Patent......dis 33⅓ @ 30&10 %
Hall's Pat. Compound Lever Cutting Nippers, No. 2, 5 in., $13.50; No. 4, 7 in., $21.00 ⅌ doz......dis 20&10 %
Humason & Beckley Mfg. Co......dis 50 %
Gas Pliers......dis 60 %
Eureka Pliers and Nippers......dis 40 %
Russell's Parallel......dis 25 %
P. S. & W. Cast Steel......dis 50 %
P. S. & W. Tinners' Cutting Nippers....add 6 % dis 10 %

Plumbs and Levels.
Standard List......dis 70&10 %
Disston's......dis 45&10 %
Pocket Levels......dis 70&10 %
Davis' Inclinometers......dis 10&10 %

Post Hole and Tree Augers and Diggers.
Samson Post Hole Digger......⅌ doz $36.00, dis 20&10 %
Fletcher Post Hole Augers......⅌ doz $36.00. dis 20 %
Eureka Diggers......⅌ doz $18 @ $20
Leed's......⅌ doz $9.50 @ $10.50
Vaughan's Hollow Tube Post Hole......per doz, $24.00......dis 33⅓ @ 30&10&10 %
Kohler's Little Giant......⅌ doz $24
Kohler's Hercules......⅌ doz $21.00
Schneidler......⅌ doz $24, dis 2 % cash
Ryan's Post Hole Diggers......⅌ doz $24
Cronk's Post Bars......⅌ doz $72, dis 50&5 @ 50&10 %

Potato Parers.
White Mountain......⅌ doz $5.50
Antrim Combination......⅌ doz $8.00
Hoosier......⅌ doz $13.50

Pruning Hooks and Shears.
Disston's Combined Pruning Hook and Saw ⅌ doz $18.00......dis 20&10 %
Disston's Pruning Hook......⅌ doz $12.00, dis 20&10 %
E. S. Lee & Co.'s Pruning Tools......dis 40 %
Pruning Shears......⅌ doz $3.75 @ $4.00 net
Henry's Pruning Shears......⅌ doz $4.50 net
Wheeler, M. & Co.'s Combination....⅌ doz $12, dis 20 %
Dunlap's Saw and Chisel......⅌ doz $8.50, dis 30 %
J. Mallinson & Co., A. & B. Co. list......dis 33⅓ %

Pulleys.
Hot House, Awning, &c......dis 66⅔&10 %
Japanned Screw......dis 66⅔&10 %
Brass Screw......dis 70&10 %
Japanned Side......dis 66⅔&10 %
Japanned Clothes Line......dis 60&10 %
Hay Fork, Solid Eye, $4.00; Swivel, $4.50 { dis 50&10 @ 50&10&5 %
Hay Fork, "Anti-Friction," 5 in. Solid, $5.70...dis 50 %
Hay Fork, "F" Common and Pat. Bushed......dis 20 %
Hay Fork, Tarbox Pat. Iron......dis 20 %
Shade Rack......dis 45 %
Tackle Blocks......See Blocks

Pumps.
Cistern, Best Makers......dis 50 %
Pitcher Spout, Best Makers......dis 60 %
Pitcher Spout, Cheaper Goods......dis 70 @ 70&5 %

Punches.
Saddlers' or Drive, good quality......⅌ doz $0.75
Bemis & Call Co.'s Cast Steel Drive......dis 50&5 %
Bemis & Call Co.'s Springfield Socket......dis 50&5 %
Spring, good quality......⅌ doz $2.50 @ $2.60
Spring, Leach's Patent......dis 15 %
Bemis & Call Co.'s Spring and Check......dis 40 %
Solid Tinners'......⅌ doz $1.44, dis 55 %
Tinners' Hollow Punches......dis 20&2 %

Rail.
Sliding Door, Wrought Brass ⅌ ℔ 35¢, dis 20@25 %
Sliding Door. Bronzed Wrt. Iron......⅌ foot 7¢
Sliding Door Iron, Painted....⅌ foot 4¢, dis 20&10&5 %
Barn Door, Light....Inch. ½ ⅝ ¾
Per 100 feet......$2.50 3.00 4.40—dis 10 %
B. D. for N. E. Hangers—
Small. Med. Large
Per 100 feet......$2.15 2.70 3.25 net
Terry's Wrought Iron, 5¢ ⅌ foot......net
Victor Track Rail, 7¢ ⅌ foot......dis 50&2 %

Rakes.
Cast Steel......dis 60&10 %
Malleable......dis 60&10 @ 60&10&5 %

Razors.
J. R. Torrey Razor Co......dis 20 %
Wostenholme & Butcher......$10 to £, dis 10 %

Razor Strops.
Genuine Emerson......dis 60 %
Imitation Emerson......⅌ doz $2.00, dis 20&10&10 %
Torrey's......dis 20 %
Badger's Belt and Combination......⅌ doz $2

Rivets.
Black and Tinned Iron, Flat Head M Rivets (in packages and in bulk)...... } dis 50 %
Block and Carriage (in C packages)...... }
Iron Rivets (other than above) in bulk...... } dis 45 %
Black and Tinned Burrs...... }
Copper Rivets and Burrs......dis 60 @ 60&5 %
Nos. 7 8 9 10 11 12 13 14 15
⅌ ℔ .49¢ 50¢ 52¢ 54¢ 56¢ 58¢ 60¢ 65¢ 70¢

Rivet Sets......dis 50&2 %

Rods.—Stair, Brass......dis 25&5 %
Stair Black Walnut......⅌ doz 50¢

Rollers.—Barn Door, Sargent's list..dis 60&10&10 %
Acme (Anti-Friction)......dis 55 %
Union Barn Door Roller......dis 70 %

Rope.
Mnf'rs l'st, July 1, 1885.
Manila......½ inch and larger ⅌ ℔ 13½¢
Manila......⅜ inch ⅌ ℔ 14 ¢
Manila......¼ and 5-16 inch ⅌ ℔ 14½¢
Manila Tarred Rope......⅌ ℔ 13 ¢
Manila, Hay Rope......⅌ ℔ 13½¢
Sisal......½ inch and larger ⅌ ℔ 8½¢
Sisal......⅜ inch ⅌ ℔ 9 ¢
Sisal......¼ and 5-16 inch ⅌ ℔ 9½¢
Sisal, Hay Rope......⅌ ℔ 8½¢
(Dis 1¢ ⅌ ℔.)
Cotton Rope......⅌ ℔ 15 @ 18¢ net
Jute Rope......⅌ ℔ 7¢

Rules.—Boxwood......dis 80&10 %
Ivory......dis 55 @ 55&10 %
Stephens' Ivory......dis 50 %

Sad Irons.
From 4 to 10, at factory......⅌ 100 ℔ $2.25 @ $2.50
Self-Heating......⅌ doz. $9.00 net
Self-Heating, Tailors'......⅌ doz. $18.00 net
Gleason's Shield and Toilet......dis 25 %
Mrs. Pott's Irons, Double Pointed......dis 35 @ 40 %
Mrs. Pott's Irons, Square Back......dis 35 @ 40 %
Enterprise Star Irons, new list, July 20, 1882....dis 35 %
Combined Fluter and Sad Iron...⅌ doz. $15.00, dis 15 %
Chinese Laundry (N. E. Butt Co.)......8½¢, dis 15 %
New England......5¢, dis 15 %

Sand Paper and Emery Paper.
Baeder & Adamson's Flint, 00 to 1½..$4.50 ⅌ ream
Baeder & Adamson's Flint, 2, 2½ & 3...5.00 ⅌ ream
Baeder & Adamson's Flint, assorted..4.75 ⅌ ream
Baeder & Adamson's Star......3.75 ⅌ ream
(dis40@40&5 %)
Bartles Best Flint, Nos. 00 to 1½......⅌ ream $4.50
Bartles Best Flint, assorted......⅌ ream 4.50
Bartles Best Flint, Nos. 2 to 3......⅌ ream 5.00
Bartles Best Flint, No. 3½......⅌ ream 5.50
Columbia Flint, all Nos......⅌ ream 4.00
Madison Mills Flint, all Nos......⅌ ream 3.50
(dis 40@40&5 %)
Emery Paper, 00 to 1½, $6.50; 2, $7.50; 2½, $9.50 ......dis 40 @ 40&5 %
Emery Cloth, B. A. & Co., 00 to 1½, $18; 2, $20; 2½, $24......dis 40 @ 40&5 %
Emery or Crocus Cloth, Sibley, 9x12 in., $16.00 } dis 20 %
Emery or Crocus Cloth, Sibley, 7x9 in., $10.50 }
New England, same list as B. & A. Flint......dis 35&10 %
Sand Paper without brand......⅌ ream, $2.10 net

Sash Cord.
Common......⅌ ℔, 12½¢ @ 13¢ net
Patent......⅌ ℔, 15¢ @ 16¢ net
White Cotton Braided......⅌ ℔ 32¢ @ 33¢
Common Russia Sash......⅌ ℔ 14¢
Patent " "...... " 18¢
Cable Laid Italian "...... " 26¢
India Cable Laid "...... " 14¢
Silver Lake, A Quality, White......50¢. dis 10&10 %
Silver Lake, A Quality, Drab......55¢. dis 10&10 %
Silver Lake. B Quality, White..50¢. dis 10&10&10@30 %
Silver Lake, B Quality, Drab....55¢. dis 10&10&10@30 %
Silver Lake, C Quality, White (only)......29¢ @ 30¢
Spring Lake, A Quality......50 @ 55¢. dis 10&10&5 %

Sash Locks.
Clark's No. 1, $10.00; No. 2, $8.00 ⅌ gross......dis 33⅓ %
Ferguson's......dis 33⅓ %
Morris......dis 50&10 %
Morris' Triumph (revised list)......dis 60 %
Walker's......dis 10 %
Attwell Mfg. Co......dis 25 @ 33⅓ %
Hammond's Window Springs......dis 40 %
Common Sense, Japanned, Coppered and Bronzed......⅌ gross
Common Sense, Nickel Plated......⅌ gross $12.00 net
Universal......dis 30 %
Kempshall's Gravity......dis 60 %
Kempshall's Model......dis 60@60&10 %
Corbin's Daisy......dis 60&5@60&10 %
Payson's Perfect......dis 50&10 &5 %
Hugunin's New and Improved Adjustable Sash Balances, list March, 1885......dis 33⅓ %
Hugunin's New Sash Locks, list March, 1885..dis 33⅓ %
Stoddard "Practical"......dis 10 %
Ives Patent......dis 55&10 %

Sash Weights.
Solid Eyes, in ton lots......⅌ ton, $19

Sausage Stuffers or Fillers.
Miles' "Challenge"......⅌ doz. $20, dis 45 %
Perry......⅌ doz. No. 1, $15; No. 0, $21 dis 45 %
Draw Cut No. 4......each, $30.00, dis 20 %
Enterprise Mfg. Co......dis 25@20&10 %
Silver's......dis 25 %

Saws
Disston's Circular, Mill and Cross Cut......dis 45&10 %
Disston's Hand, Panel, Rip, &c......dis 20&10 %
Atkins' Silver Steel Circular......dis 40 %
Atkins' Selected Steel Circular......dis 50 %
Atkins' Concaved Tooth Dexter X Cuts......⅌ foot 55 ¢
Atkins' C. S. X Cuts, Regular......⅌ foot 34 ¢
Atkins' Hollow Back X Cuts......⅌ foot 22 ¢
Wheeler, Madden & Clemson Mfg. Co.'s Hand......dis 30 @ 30&5 %
W. M. & C. Champion X Cuts, Regular......⅌ foot 26¢
W. M. & C. X Cuts, Thin Back......⅌ foot 29¢
Simond's Circular......dis 35 %
Simond's Crescent-Ground Cross Cuts, patent December 26, 1882......dis 25 %
Peace Circular and Mill......dis 45&10 %
Peace Hand Panel and Rip......dis 20&10 @ 20&10&5 %
Peace Cross Cuts, Standard......⅌ foot 25¢
Peace Cross Cuts. Thin Back......⅌ foot 28¢
Peace Band Saws, all widths......dis 20&10 %
Richardson's Circular......dis 45 %
Richardson's Mill......dis 45 %
Richardson's Cross-Cuts, No. 1, 30¢: No. 2, 27¢; No. 3, 25¢.
Richardson's Hand Panel, Butcher and Web Saws......dis 25&5 %
Barry's Circular......dis 45 %

Saws, Hack.—See Hack Saws.

Saw Frames.
White, Vermont......⅌ doz $1.50, dis 25&10 %
Red, Polished and Varnished......⅌ doz $1.50, dis 10 %
Saw Rods......$10 list dis 10&10 %

Saw Sets.
Stillman's Genuine....⅌ doz $5.00 and $7.75, dis 40&5 %
Stillman's Imitation..⅌ doz $3.25 and $5.25, dis 40&5 %
Common Lever......⅌ doz $2.00, dis 40&5 %
Leach's......No. 0, $8.00; No. 1, $15.00, dis 15 %
Nash's......dis 20&10 @ 20&10&5 %
Hammer, Hotchkiss......$5.50, dis 10 %
Hammer, Bemis & Call Co.'s new Patent ...dis 30&5 %
Bemis & Call Co.'s Lever and Spring Hammer.dis 30&5 %
Bemis & Call Co.'s Plate......dis 10 %
Bemis & Call Co.'s Cross Cut......dis 12½ %
Aiken's Genuine......$13.00, dis 50&10 %
Aiken's Imitation......$7.00, dis 55&5 %
Hart's Patent Lever......dis 20 %
Disston's. Star, $9. No. 15 Hammer, $5.50...dis 20&10 %
Morrill's..No. 1, $15.00; Nos. 3 and 4, $24. ......dis 40&10 @ 40&10&5 %
Croissant (Keller).No.1,$15.00; No. 2,$24.00,dis 33⅓&10 %
Boynton's No. 1, $12 ⅌ doz; No. 2, $10......dis 25 %

Scales.
Hatch, Counter. No. 171......⅌ doz $42.00, dis 50&10 %
Hatch, Tea. No. 161......⅌ doz $15.00, dis 50&10 %
Union Platform, Plain......$2.15 @ 2.20
Union Platform, Striped......$2.30 @ 2.40
Chatillon's Grocers......dis 40 %
Chatillon's Eureka......dis 25 %
Chatillon's Family Favorite......dis 30 %
Family Universal.⅌ doz, 12 ℔, $30.00; 24 ℔, $36.00, net
Family, Turnbull's......dis 30@30&10 %
Scale Beams, List of Jan. 12, 1882..dis 60&5 @ 60&10 %
Scale Beams, Custer......dis 25 %

Scrapers.
Adjustable Box Scraper (S. R. & L. Co.).$6.50, dis 20&10 %
Box, 1 Handle......⅌ doz $4.00, dis 10 %
Box, 2 Handle......⅌ doz $6.00, dis 10 %
Defiance Box and Ship......dis 20&10 %
Foot......dis 50&10 %
Ship, Common......⅌ doz $3.50 net
Ship, Providence Tool Co......dis 10 %

Screen Corners.
Porter's Pat. Window and Door Frame......dis 33⅓ %
Screen Corner Irons, Warner's......dis 33⅓ %

Screw Drivers.
Douglas Mfg Co......dis 20&10&10 %
Disston's......dis 45&10 %
Disston's Patent Excelsior......dis 45&10 %
Buck Bros......dis 30 %
Stanley R. & L. Co.'s Varnished Handles....dis 60&10 %
Stanley R. & L. Co.'s Black Handles......dis 50&10 %
Sargent & Co.'s Nos. 1 & 20 Forged Blade..dis 70&10 %
Sargent & Co.'s Nos. 40 & 30, Cast Steel.dis 55&10&10 %
Sargent & Co.'s No. 60, Round Blade....dis 60&10&10 %
Knapp & Cowles' No. 1......dis 60&10&10 %
Knapp & Cowles' No. 1 Extra......dis 50&10 %
Knapp & Cowles' No. 00 & 4......dis 40 %
Sets Interchangeable......⅌ doz $18.00, dis 25 %
Champion......dis 25 %
Clark's Patent......dis 20&10 %
Crawford's Adjustable......dis 30 %
Knapp & Cowles' Screw-Driver Bitts......⅌ doz 90¢
Elrich's Socket and Ratchet......dis 25 %
Allard's Spiral, new list......dis 25 %

Screws.
Am. Screw Co.'s list, Jan. 1, 1885:
Flat Head Iron......dis 80 %
Round Head Iron......dis 75&10 %
Note.—On above Screws an extra discount of 10 % on ⅜ inch and smaller is given.
Flat Head Brass......dis 75&10 %
Round Head Brass......dis 75 %
Russell & Erwin list, April 1, 1885:
Flat Head Iron......dis 85&10 %
Round Head Iron......dis 85 %
Flat Head Brass......dis 85 %
Round Head Brass......d 83⅓ %
Brass and Silver Capped Screws......dis 40 %
Lag or Coach......dis 75&10 @ 80 %
Coach, Patent Gimlet Point......dis 75 @ 75&5 %
Bed......dis 35 %
Machine, Flat Head, Iron......dis 66 %
Machine, Round Head, Iron......dis 55 %
Bench, Iron......dis 55&10 @ 55&10&10 %
Bench, Wood, Beech......⅌ doz $2.25
Bench, Wood, Hickory......dis 20&10 %
Hand, Wood......dis 25&10 @ 25&10&5 %
Hand Rail, Sargent's......dis 66⅔&10 %
Hand Rail, Humason, Beckley & Co.'s......dis 70 %
Hand Rail, Am. Screw Co......dis 70 %

Scroll Saws.—Lester, complete, $10.00....dis 25 %
Rogers, complete, $4.00......dis 25 %

Scythes.
Blood's, Grass......dis
Blood's Grained......dis
Other brands......dis

Scythe Snaths......dis 40&5&2 %

Shears and Scissors.
American (Cast) Iron......dis 75&10 %
Pruning......See Pruning Hooks and Shears
Barnard's Lamp Trimmers......⅌ doz $3.75
Tinners'......dis 20&2 %
Seymour's, List, Dec., 1881......dis 60&10&5 %
Heinsch's, List, Dec., 1881......dis 60&10 %
Heinsch's Tailor's Shears......dis 33⅓ %
First quality C. S. Trimmers......dis 80 %
Second quality C. S. Trimmers.dis 80&10 @ 80&10&5 %
Acme Cast Shears......dis 10&10 %
Diamond Cast Shears......dis 10 %
Clipper......dis 10&10 %
Victor Cast Shears......dis 75&10 %
Howe Bros. & Hulbert, Solid Forged Steel......dis 40 %

Sheaves.
Sliding Door M. W. & Co., list......dis 66⅔&5&2 %
Sliding Door, R. & E., list......dis 60&10&2 %
Sliding Door, Corbin's list......dis 60&10&2 %
Sliding Door, Patent Roller......dis 60&10&2 %
Sliding Door, Patent Roller, Hatfield's......dis 70 %
Sliding Door, Russell's Anti-Friction......dis 60&10&2 %
Sliding Door, Moore's Anti-Friction......dis 60 %
Sliding Shutter, R. & E. list......dis 60&10&2 %
Sliding Shutter, Sargent's list......dis 66⅔&10 %
Sliding Shutter, Reading list......dis 66⅔&10 %
Moore's Anti-Friction (Hanging)......New list, dis 25 %

Ship Tools.—L. & I. J. White......dis 20&5 %
Albertson Mfg. Co......dis 25 %

Shovels and Spades.
Ames' Shovels, Spades, &c., Ames' brands......dis 20 %
Some special brands of Ames' goods......dis 20&10 %
Griffith's Black Iron......dis 50&10 %
Griffith's Steel......dis 60 %
Griffith's Solid Cast Steel R. R. Goods......dis 20 %
Old Colony......dis 15 %
Groom Shovel Co......dis 20 @ 20&5 %
Hussey, Binns & Co......dis 20 @ 20&5 %
Lehigh Mfg. Co......dis 50&10 %
Payne Pettebone & Son, list Jan. 2, 1882......dis 50&5 %
R. T. Pettebone, Pat. Shovels, new list......dis 50 %
R. T. Pettebone, Pat. Scoops, new list......dis 20 %
Remington's (Lowman's Patent), ...dis 30 @ 30&10 %
Rowland's, Black Iron......dis 50&10 %
Rowland's Steel......dis 60&5 @ 60&10 %

Shovels and Tongs.
Iron and Brass Head, R. & E. ..dis 60&10&2@60&10&5 %
Iron and Brass Head, P. S. &W.dis 60&10&2@60&10&5 %

Sieves.
Buffalo Metallic, S. S. & Co., new list......dis 50&20 %
Barler's Flour Sifters......⅌ doz $2 50

Slates.
Square Frames, by case......dis 45 %

Spoke Shaves.
Iron......dis 45 %
Wood......dis 30 %
Bailey's (Stanley R. & L. Co.)......dis 40&10 %
Stearns'......dis 30&10 %

Spoke Trimmers.
Bonney's......⅌ doz $10.00, dis 50 %
Stearns'......⅌ doz $9.00, dis 20&10 %
Ives'......No. 1, $15.00; No. 2, $12.00 ⅌ doz, dis 55&10 %
Douglass'......⅌ doz $9.00, dis 20 %

Spoons.
Basting, Central Stamping Co.'s list......dis 33⅓&2 %
Solid Table and Tea, Central Stamping Company's list......dis 33⅓&2 %
Buffalo, S. S. & Co......dis 50&10 %
Britannia......dis 60&10 %
Meriden Brit. Co., Rogers......dis 50&5 %
Wm. Rogers Mfg. Co......dis 50&10 %
Holmes, Booth & Haydens......dis 50&10@60 %
Holmes & Edwards Silver Co......dis 50&10@60 %
German Silver......dis 50 %
Cast Steel, Silver Plated......dis 40 %
H. & E. Silver Co. Steel Silver-Plated Teas. $15; Tables, $30......dis 50 @ 50&10 %
Tin (Cowles Hdw. Co)......dis 10 %
Tin (Cowles Hdw. Co.). case lots......dis 20 %

Square.
Steel and Iron...... } dis 60&10 &
Nickel Plated...... } 10@70 %
Try Square and T Bevels......dis 60&10 %
Disston's Try Square and T Bevels......dis 45&10 %
Winterbottom's Try and Miter......dis 20&10 %

Steelyards......dis 40&10 @ 50 %

Stocks and Dies......dis 5&10 %
"Lightning" Screw Plate......dis 10 @ 10&10 %

Stone.
Hindostan No. 1, 4¢; Ax, 5½¢; Slips, 7¢.
Sand Stone......⅌ ℔, 5¢, dis 33⅓&10 %
Washita Stone, Extra......⅌ ℔, 18¢
Washita Stone......No. 1, ⅌ ℔, 14¢ @ 14½¢
Washita Stone......No. 2 ⅌ ℔, 11½¢ @ 12¢
Washita Stone Slips......No. 1, ⅌ ℔, 25¢ @ 20¢
Arkansas Stone, No. 1, 4 to 6 in......⅌ ℔, $1.35
Arkansas Stone, No. 1, 6 to 9 in......⅌ ℔, $2.00
Turkey Oil Stone (Chase)......4 to 8 in., ⅌ ℔, 60¢
Turkey Slips (Chase)......$1.75 ⅌ ℔
Lake Superior (Chase)......⅌ ℔, 10¢
Lake Superior Slips (Chase)......⅌ ℔, 30¢

Stove Boards.
Buffalo Zinc, S. S. & Co......dis 50 %

Stove Polish.
Joseph Dixon's......⅌ gro $6.00, dis 10 %
Gem......⅌ gro $4.50, dis 10 %
Gold Medal......⅌ gro $6.00, dis 25 %
"Mirror"......⅌ gro $6.00, dis — %
Lustro......⅌ gro $4.75 net
Ruby......⅌ gro $3.75 net
Rising Sun......⅌ gro $5.75 net
Dixon's Plumbago......⅌ ℔ 8¢ net
Boynton's Noon Day, ⅌ gro, No. 1, large, $5.50; No. 2 small, $3; No. 3, medium, $4.

Tacks, Brads, &c.
List, Sept. 1, 1882
American Iron Carpet Tacks, all kinds......dis 65%
Steel Carpet Tacks, all kinds......dis 60 %
Swedes Iron Carpet Tacks, all kinds......dis 60 %
Swedes Iron Tacks......dis 60 %
Swedes Iron Upholsterers' Tacks......dis 60 %
Tinned Swedes Iron Tacks......dis 60 %
Tinned Swedes Iron Upholsterers' Tacks..dis 60 %
American Iron Cut Tacks......dis 60 %
Copper Tacks......dis 55 %
Copper Finishing and Trunk Nails......dis 55 %
Cigar Box Nails......dis 50 %
Finishing Nails......dis 50 %
Hungarian Nails and Miners' Tacks......dis 45 %
Gimp and Lace Tacks......dis 60 %
Tinned Gimp and Lace Tacks......dis 60 %
Trunk and Clout Nails......dis 40 %
Tinned Trunk and Clout Nails......dis 40 %
Basket Nails......dis 40 %
Chair Nails......dis 40 %
Common and Patent Brads......dis 50 %
Tinned Capped Trunk Nails......dis 50 %
Looking-Glass Tacks......dis 30 %
Picture-Frame Points......dis 30 %
Leathered Carpet Tacks......dis 30 %
Brush Tacks......dis 30 %
Shoe Finders'......List July 1, 1885
Lining and Saddle Nails......List June 19, 1885
(Extra 10&2 % for cash.)
Double-pointed Tacks......dis 75&10 @ 75&10&5 %
Wire Carpet Nails......dis50 %
Wire Carpet Nails, R. & E. Mfg. Co......dis 40&10 %
Steel Wire Brads, R. & E. Mfg. Co......dis 40&10 %

Tap Borers.
Common and Ring......dis 20&10 %
Ives' Tap Borers......Nos. 1, 2, 4—dis 15&10 %
Ives' Tap Borers......Nos. 13, 14—dis 25&10 %
Enterprise Mfg. Co......dis 20&10 %
Clark's......dis 33⅓&35 %

Tapes, Measuring.
American......dis 25&10 %
Spring......dis 40 %
Chesterman's......Regular list dis 25 @ 30 %

Thermometers.—Tin Case......dis 80 @ 80&5 %

Tinners' Shears, &c.
Shears and Snips (P. S. & W.)......dis 20&2 %
Punches—See Punches.
Snips, J Mallinson & Co......dis 33⅓ %

Tinware.
Stamped, Central Stamping Co.'s list......dis 33⅓&2 %
Japanned, Central Stamping Co.'s list......dis 33⅓&2 %
Pieced, Central Stamping Co......dis 33⅓&2 %
Pieced, S. S. & Co......dis 60 %
Japanned. S. S. & Co......dis 25&10 %
Stamped, S. S. & Co., new list......dis 33⅓&2 %
(Extras sometimes given.)

Transom Lifters.
Wollensak's Patent Iron Bronzed......dis 50 %
Reiher's Improved Self-Locking (Class 301)....dis 40 %
Reiher's Improved Set Screw (Class 201)......dis 45 %
Reiher's (Class 101)......dis 50&10 %
Excelsior......dis 50&10&2 %
Shaw's......dis 45&10 %

Tobacco Cutters.
Enterprise Mfg. Co. (Champion)......dis 20&10 %
Wood Bottom......⅌ doz $5.00 @ $5.25
All Iron......⅌ doz $4.25
Nashua Lock Co.'s......⅌ doz $18.00 dis 50@55 %
Wilson's......dis 55 %
Clipper (Sargent & Co.)......⅌ doz $24, dis 50&10&10 %
Acme......⅌ doz $20.00, dis 40 %

Traps.
Game, Newhouse......dis 35 %
Game, Oneida Pattern......dis 60&10&10 %
Game, Blake's Patent......dis 40&10 %
Mouse, Wood, Choker......⅌ doz holes, 15¢
Mouse, Round Wire......⅌ doz $1.50, dis 10 %
Mouse, Cage, Wire......⅌ doz $2.50, dis 10 %
Mouse, Catch-'em-alive......⅌ doz $2.50, dis 15 %
Mouse, "Bonanza"......⅌ gross $10 net
Mouse, Delusion......⅌ gross $18.00, dis 15 %
Rat, "Decoy"......⅌ doz $10.00, dis 10 %

Trowels.
Lothrops' Brick and Plastering......dis 20&10 %
Reed's Brick and Plastering......dis 15 %
Disston's Brick and Plastering......dis 20&10 %
Peace's Plastering......dis 25 %
Clement & Maynard's......dis 20 %
Rose's Brick......dis 15 %
Brade's Brick......dis 25 %
Worrall's Brick and Plastering......dis 20 %
Garden......dis 70 %

Triers.
Butter and Cheese......dis 25 %

Trucks, Warehouse, &c.
Penfield Block Co.'s list, 1882......dis 40 %

Twine.

	BC.	B.	
No. 9, Flax Twine, ¼ and ½ ℔ Balls	24¢	31¢	...
No. 12, " " ¼ and ½ "	22¢	24¢	...
No. 18, " " ¼ and ½ "	20¢	22¢	...
No. 24, " " ¼ and ½ "	20¢	22¢	...
No. 36, " " ¼ and ½ "	19¢	21¢	...
No. 264, Mattrass, ¼ and ½			50¢
Chalk Line, Cotton, ½ ℔ Balls			28¢
Mason Line, Linen, ½ "			60¢

2-Ply Hemp, ¼ and ½ ℔ Balls (Spring Twine), 14½¢; 3-Ply Hemp, 1 ℔ Balls, 15¢; 3-Ply Hemp, 1½ ℔ Balls, 13¢; Cotton Wrapping, 5 Balls to ℔, 14¢ @ 20¢; 2, 3, 4 and 5 Ply Jute, ½ ℔ Balls, 11¢; Wool, 6¢ @ 6½¢; Paper, 10¢; Cotton Mops—6, 9, 12 and 15 ℔ to doz., 17¢

Vises.
Solid Box......dis 50&10 @ 60 %
Parallel, Fisher & Norris Double Screw......dis 15&10 %
Parallel, Stephens'......dis 25 %
Parallel, Parker's......dis 20 @ 25%
Parallel, Wilson's......dis 55 %
Parallel, Howard's......dis 40 %
Parallel, Bonney's......dis 40 %
Parallel, Merrill's......dis 15@20 %
Parallel, Sargent's......dis 60&10 %
Parallel, Backus and Union......dis 40 %
Parallel, Double Screw Leg......dis 15&10 %
Parallel Prentiss......dis 20@25 %
Parallel, Simpson's Adjustable......dis 40 %
Saw Filers, Bonney's, Nos. 2 & 3..⅌ doz $15.00, dis 40 %
Saw Filers, Stearn's......dis 40 %
Saw Filers, Hopkins'......⅌ doz $17.50, dis 10 %
Saw Filers, Reading......dis 40&10 %
Saw Filers, Wentworth......dis 20&10 %
Cowell Hand Vises......dis 20 %
Richardson's Vise and Anvil......dis 25 %

Washer Cutters.
Smith's Patent......⅌ doz $12.00, dis 20&10&10 %
Johnson's......⅌ doz $11.00, dis 33⅓ %
Penny's......⅌ doz Pol. $14; Jap'd, $16..dis 55 %
Appleton's......⅌ doz $16.00, dis 60&10 %
Bonney's......dis 30&10 %

Washers.—See Nuts and Washers

Well Wheels—8 in., $1.85; 10 in., $2.15; 12 in., $2.90

Wire.
Brass and Copper. new list. Jan. 18, '84.dis 30@30&5 %
Market, Bright and Annealed, No. 0 to 18.dis70@70&7½ %
Market, Coppered......dis 65 @ 65&7½ %
Market, Galvanized......dis 60 @ 60&5 %
Market, Tinned, Tinned list......dis 60 @ 60&5 %
Stone, Bright and Annealed Nos. 19 to 26..dis 70@70&5 %
Stone, Bright and Annealed Nos. 27 to 36dis 75@75&5 %
Stone, Galvanized, Nos. 19 to 30......dis 55@55&5 %
Stone, Tinned, Tinned list......dis 60@60&5 %
Tinned Broom Wire......dis 65@65&5 %
Cast Steel Wire......dis 55@55&5 %
Annealed Fence, Nos. 8 & 9......dis 70@70&5 %
Annealed Grape, Nos. 10 to 14......dis 70@70&5 %
Fence Staples......⅌ ℔ 3¼ @ 3½¢
Fence Staples, Galvanized......⅌ ℔ 4½ @ 5¢
Stubs' Steel Wire......$6.00 to £, dis 30 %
Barb Fence......See Trade Report
Barb Wire Safety Guards......⅌ 1000 $9.00, dis 25 %
Wire on Spools......dis 65 %
Steel Music Wire, Nos. 12 to 30......55¢ ⅌ ℔
Picture Wire......dis 60&10 %
Wire Clothes Lines. See Lines.
Wire Cloth, green, drab and black, ⅌ 100 sq. ft.. ..$2

Wrenches.—American Adjustable......dis 45 %
Baxter's Adjustable "S"......dis 33⅓ %
Baxter's Diagonal......dis 35&10 %
Coes' Genuine......cash in 10 days, dis 60&3 %
Coes' "Mechanics'"......dis 60&10&3 %
Coes' Pattern, Malleable......dis 80&5 %
Coes' Pattern, Wrought......dis 75&10&5 @ 80 %
Girard Standard......dis 70 @ 70&5 %
Girard Agricultural......dis 70&10&5 %
Bemis & Call's Patent Combination......dis 30&5 %
Bemis & Call's Merrick's Pattern......dis 35 %
Bemis & Call's Brigg's Pattern......dis 25 %
Bemis & Call's Cylinder or Gas Pipe......dis 40&5 %
Bemis & Call's No. 3 Pipe......dis 35&5 %
Aiken's Pocket (Bright)......$6.00, dis 50&10 %
The Favorite Pocket (Bright)......⅌ doz $4.00, dis 40 %
Webster's Patent Combination......dis 25 %
Boardman's......dis 25@25&10 %
"Always Ready"......dis 25&5 %
Alligator......dis 40&10 %
Donohue's Engineer......dis 25 %
Acme, Bright......dis 60&3 %
Acme, Nickeled......dis 45 %
Acme, Bicycle, 4½ in......dis 45 %

Wringers. (dis $3 ⅌ doz)

	Per doz.
Novelty for Common Tubs, No. 2, 10-inch	$30.00
Novelty, for Common Tubs, No. 3, 11-inch	34.50
Excelsior, for Stationary Tubs, No. E, 10-inch	39.00
Excelsior, for Stationary Tubs, No. F, 11-inch	43.50
Excelsior, with Folding Bench, No. A, 10-inch	48.00
Excelsior, with Folding Bench, No. B, 11-inch	52.50
Universal, No. 2½	30.00
Universal, No. 2	33.00
Universal, No. 1¼	34.50
Universal, No. 1½	39.00
Universal, No. 1	57.00
Universal, for Set Tubs, A 2½	39.00
Universal, for Set Tubs, E 1½	48.00
Universal, for Set Tubs, C 1	66.00
Adams & Co. No. 8	30.00
Peerless No. 2½	30.00
Peerless No. 3½	34.50
No. 99 Improved 2½	30.00
"Metropolitan," No. 2	33.00
"Metropolitan," No. 2½	30.00
Leader	28.00
Advance	30.00

Wrought Staples, Hooks, &c.—See Hooks.

WHOLESALE METAL PRICES, September 2, 1885.

METALS.

IRON.—DUTY: Bars, 8-10¢ to 1 1-10¢ ℔ ℔; provided that no Bar Iron shall pay a less rate of duty than 35 %. Sheet, 1 1-0¢ to 1 5-10¢ ℔ ℔. Band, Hoop and Scroll, 1¢ to 1 4-10¢ ℔ ℔. Railroad Bars weighing more than 25 ℔ ℔ yard, 7-10¢ of 1¢ ℔ ℔.

Standard American Pig Iron.

Foundry No. 1 X	℔ ton	$17.50 @ 18.00
Foundry No. 2 X	℔ ton	16.00 @ 16.50
Gray Forge	℔ ton	15.25 @ 15.50

No. 1 Scotch Pig Iron.

Carnbroe	℔ ton	18.50 @ 19.00
Coltness	℔ ton	19.50 @ 20.00
Shotts	℔ ton	19.50 @ 20.00
Glengarnock	℔ ton	18.50 @ 19.00
Gartsherrie	℔ ton	19 50 @ ....
Langloan	℔ ton	20.00 @ ....
Summerlee	℔ ton	19.00 @ 19.50
Dalmellington	℔ ton	18.50 @ ....
Eglinton	℔ ton	17.50 @ 18.00
Clyde	℔ ton	18 50 @ 19.00

Rails.

Steel, at Eastern mills	℔ ton	.... @ 29.00
Old Rails, Ts	℔ ton	16.00 @ 16.50

Scrap.

Wrought, ℔ ton, from yard ..... 18 00 @ .....

Bar Iron from Store.

Common Iron: ¾ to 1 in. round and square... / 1 to 6 in. x ¾ to 1 in ... \	℔ ℔	1.6 @ 1.75¢
Refined Iron: ¾ to 2 in. round and square... / 1 to 6 in. x ⅜ to 1 in ... \	℔ ℔	1.85 @ 2.3¢
1 to 6 in. x ¼ and 5-16	℔ ℔	1.9 @ 2.4¢
Rods—⅜ and 11-16 round and sq	℔ ℔	1.7 @ 2.3¢
Bands—¼ to 6x3-16 to No. 12	℔ ℔	2 @ 2.5¢
"Burden's Best" Iron, base price	℔ ℔	2.9¢
Burden's "H. B. & S." Iron, base price	℔ ℔	2.5¢
Norway Nail Rods		5 @ 6¢

Sheet Iron from Store.

		Common American.	R. G. Cleaned.
Nos. 10 to 16	℔ ℔ 2.70	@ 3 ¢	3¼¢
17 to 20	℔ ℔ 3	@	3¼¢
21 to 24	℔ ℔ 3	@	3¼¢
25 and 26	℔ ℔ 3.12½	@	3¼¢
27	℔ ℔ 3.25	@	3¼¢
28	℔ ℔ 3.25	@ 3.37½¢	4 ¢

		B B.	3d qual.
Galvanized, 10 to 20	℔ ℔	5 ¢	4½¢
Galvanized, 21 to 24	℔ ℔	5½¢	5 ¢
Galvanized, 25 to 26	℔ ℔	6 ¢	5½¢
Galvanized, 27	℔ ℔	6½¢	6 ¢
Galvanized, 28	℔ ℔	7 ¢	6½¢
American Russia	℔ ℔	A, 10¢	B, ¢
Russia	℔ ℔	10½¢ @	11½¢
American Cold Rolled B. B	℔ ℔	5 ¢ @	7 ¢

Iron Wire.—*(See Wire.)*

STEEL.—DUTY. Ingots, Bars, Sheets, &c., valued at 4¢ ℔ ℔ or less, 45 % ad. val.; valued above 4¢ and not above 7¢ ℔ ℔, 2¢ ℔ ℔; valued above 7¢ and not above 10¢ ℔ ℔, 2½¢ ℔ ℔; valued above 10¢ ℔ ℔, 3½¢ ℔ ℔. *Extras.*—Steel Bars, Rods, &c., cold hammered or polished, in any way in addition to ordinary hot rolling, 1½¢ ℔ ℔ in addition to above; Steel Circular Saw Plates, 1¢ ℔ ℔ in addition to the above.

American Cast Steel.

For American Steel, see Pittsburgh quotations.

English Steel.

Best Cast	℔ ℔	15½¢
Extra Cast	℔ ℔	16½ @ 17½¢
Circular Saw Plates	℔ ℔	14½¢
Round Machinery, Cast	℔ ℔	10½¢
Swaged, Cast	℔ ℔	16½¢
Best Double Shear	℔ ℔	15½¢
Blister, 1st quality	℔ ℔	14 ¢
German Steel, Best	℔ ℔	10 ¢
2d quality	℔ ℔	9 ¢
3d quality	℔ ℔	8 ¢
Sheet Cast Steel, 1st quality	℔ ℔	15½¢
2d quality	℔ ℔	14½¢
3d quality	℔ ℔	13½¢

TIN.—DUTY Plates, Sheets, Tagger and Terne, 1¢ ℔ ℔; Bars, Block and Pigs free.

Banca	℔ ℔	@ 22 ¢
Straits	℔ ℔	21½¢ @ 21⅝¢
English	℔ ℔	21½¢ @ ....
Bar	℔ ℔	23½¢ @ ....

Charcoal Tin Plates.

I C 10x14 225 sheets	℔ box	$5.00	@ 7.25
I C 12x12 225 sheets	"	5.00	@ 7.50
I C 20x28, 112	"	10.00	@ 14.50
I X 10x14 225 sheets	"	6.25	@ 9.25
I X 12x12 225 sheets	"	6.25	@ 9.50
I X 14x20, 112 "	"	6.25	@ 9.25
D C 12½x17 100 "	"	5.00	@ 5.50
D X 12½x17, 100 "	"	6.25	@ 7.00
For each additional X add	"	1.25	@ 2 00

Coke Tin Plates.

	Best.	Ordinary
I C 10x14 } I C 14x20 }	$4.75	$4.62½ @ ....
I C 12x12	4.75	4.62½ @ ....
I C 10x20, gutters, 225 sheets	8.00	7.25
I C 20x28, 112 sheets	....	10.25

Terne Plates.

	Prime Char.	2d. quality	Coke.
I C 14x20 M. F.	$7	...	....
I C 14x20 Old Process	...	...	$6.87½
I C 20x28	"	...	14.25
I C 14x20	$4.75 @ 4.87½		
I X 14x20	6.25 @ 6.75		
I C 20x28	9.25 @ 9.75	8.75	8.62½ @ 8.75
I X 20x28	12.75 @ 14.50		
I C 20x200	13.50 @		

Tin Boiler Plates.

I XX 14x26, 2 sheets for No. 7, 112 sheets	@	$12.00
I XX 14x28, 2 " " No. 8, "	@	13.00
I XX 14x31, 2 " " No. 9, "	@	15.00

COPPER.—DUTY: Pig, Bar and Ingot, 4¢: Old Copper, 2¢ ℔ ℔. Manufactured (including all articles of which Copper is a component of chief value), 35 % ad valorem.

Ingot, Lake	℔ ℔	11½¢ @ 11¾¢
Ingot, Baltimore	"	10¾¢ @ 11 ¢
Ingot Anchor	"	11 ¢ @ 11¼¢
Braziers' Copper, ordinary sizes, 16 oz. ℔ sq. ft. and over		.... @ 17 ¢
Braziers' Copper, ordinary sizes, under 16 oz. and over 12 oz. ℔ sq. ft.	"	.... @ 18 ¢
Braziers' Copper, 10 oz. and 12 oz. ℔ sq. ft.	"	.... @ 20 ¢
Lighter than 10 oz. ℔ sq. ft.		.... @ 22 ¢
Circles less than 84 in. in diam.	"	.... @ 20 ¢
" 84 in. diam. and over	"	.... @ 23 ¢
Segment and Pattern Sheets		.... @ 20 ¢
Locomotive Fire-Box Sheets		.... @ 19 ¢
Sheathing Copper, over 12 oz. ℔ sq. ft.	"	.... @ 16 ¢
Bolt Copper	"	.... @ 18 ¢
Copper Bottoms	"	.... @ 18 ¢
Nickel-Plated Sheathing	"	.... @ 35 ¢
" " for boilers	"	.... @ 37 ¢
Plating extra	"	25 ¢ @ 37 ¢
Flat Copper Boiler Bottoms or Fit Bottoms, cut to special sizes	"	.... @ 21 ¢

Tinning.

14x48, by the case	℔ sheet, 8¢
4x48, less than case	" 8¢

For tinning both sides, double the above amount.

O'Neill's Patent Planished Copper.—Net.

14x48

14 and 16 oz. and heavier .30¢ By the case. ℔ ℔ 29¢
12 oz. and lighter .32¢ " " " 32¢

Boiler Sizes.

7 in., 14x52. 8 in., 14x56. 9 in., 14x60.
14 and 16 oz. and heavier .32¢ By the case. ℔ ℔ 31¢
(And all sizes not over 20 in. wide.)
34x48 and 30x60.
14 and 16 oz. and heavier ℔ ℔ 34¢
12 oz. " 37¢

Copper Wire.—*(See Wire.)*

Sheathing Metal.

Yellow Sheathing Metal, ℔ ℔ .20 @ ...

BRASS AND GERMAN SILVER.

Brown & Sharpe's Gauge the Standard for Metal; Old English Gauge the Standard for Wire.

Brass Manufacturers' Price List, January 17, 1884 .... dis. 30 @ 30 %

LEAD.—DUTY: Pig, $2 ℔ 100 ℔; Old Lead, 2¢ ℔ ℔; Pipe and Sheet, 3¢ ℔ ℔.

American	4¼ @ 4½¢
Bar	4¾ @ 5 ¢
Pipe	5½¢
Block Tin Pipe	40¢
Tin Lined Pipe	15¢, dis 20 %
Sheet	6¾¢, dis 20 %
Shot	Drop, 6¢; Buck, 7¢
Chilled Shot	7¢

ANTIMONY.

Hallett's	℔ ℔ 10	@ 10½¢
Cookson	" 10¼	@ 10¾¢

SPELTER—Duty: Pigs, Bars and Plates, $1.50 ℔ 100 lbs.

American, cash	4⅝ ¢ @ 5¢
Bergenport	9¢

ZINC—Duty: Pig or Block, $1.50 ℔ 100 lbs. Sheet, 2½¢ ℔ ℔.

600 ℔ casks	5.37½ @ 5.50¢
Zinc.—Open	6 @ 6¾¢
Zinc Tubing	dis. 10 @ 20 %

Zinc Tubing—Dis. 25 %.

Plain	.27
Fancy	.33
Scotch and Extra Patterns	.36

BABBITT METAL.

N. P. U	℔ ℔	6½ @ 7¢
X		.10¢
X X		.15¢
J. B		.20¢

WIRE.

Market Wire.—Put up in 63 ℔ bundles.

Nos. 00 to 9,	10, 11,	12,	13, 14,	15, 16,	17,	18.
	10	11	11½	12½	14	15	16
Bright Market Wire							dis 70 %
" Charcoal							dis 50 %
" Bale Wire, Nos. 7 to 12							dis 65 %
Annealed Market Wire							dis 70 %
" Fence Wire, Nos. 8 and 9							
" Grape Wire, Nos. 10 to 14							
Coppered Market Wire							dis. 65 %
" Bale Wire, Nos. 7 to 12							dis. 60 %
Galvanized Market Wire							dis 60 %
" Fence Wire							

Stone or Weaving Wire.

Nos.	16	17	18	19	20	21	22	23	24	25	26
Cents	14	15	16	19	20	21	22	23	24	25	26
Nos.	27	28	29	30	31	32	33	34	35	36	..
Cents	28	29	30	32	33	35	37	40	45	55	..

Nos. 16 to 18	dis. 70 @ 70 %
19 to 26	" 70 %
27 to 36	" 75 @ 75 %
Galvanized Stone Wire	" 55 %

Steel Wire.

Cast Steel, Steel Wire list ..... dis. 55 %

Brass and Copper Wire.

Old English Gauge the Standard.—Dis 20 @ 30.

	Common High Brass	Low Brass	Gilding Bronze and Copper.
All Nos. to No. 16, inclusive	$0.22	$0.26	$0.30
No. 17 and 18	.23	.27	.31
" 19 and 20	.24	.28	.32
" 21	.25	.29	.33
" 22	.26	.30	.34
" 23	.28	.32	.36
" 24	.30	.34	.38
" 25	.32	.36	.40
" 26	.35	.39	.43
" 27	.38	.42	.46
" 28	.42	.46	.51
" 29	.45	.49	.54
" 30	.48	.52	.62
" 31	.51	.55	.67
" 32	.55	.59	.73
" 33	.59	.63	.82
" 34	.64	.68	.95
" 35	.70	.74	1.30
" 36	.76	.80	1.50
" 37	1.00	1.04	1.70
" 38	1.30	1.34	2.00
" 39	2.00	2.00	3.25
" 40	2.60	2.60	5.75

Spring Wire, 2 cents per pound advance. Whitened Wire, 3 cents per pound advance. Flat, Square and Half-Round Wire, 4 cents advance on Round Wire. Fancy Wire, not less than 10 cents advance on Round Wire. Spooling on one-pound Spools, 12 cents per pound extra. Spooling on ten-pound Spools or more, 2 cents per pound extra.

MISCELLANEOUS TINNERS' STOCK.

Solder.

½ & ¼, Warranted	14½ @ 14¾¢
Extra	13½¢
No. 1 Refined	11½ @ 12 ¢
No. 2 "	11¼ @ 11½¢
Extra wiping	11¼ @ 11½¢

Rivets.

Iron and Tinned, new list, Dec. 10, 1881	dis. 50 %
In bulk, new list, Dec. 10, 1881	dis. 50 %
Copper Rivets and Burrs	dis. 50&10@60 %

Nos.	7	8	9	10	11	12	13	14	1
℔ ℔	49¢	50¢	52¢	54¢	56¢	58¢	60¢	65¢	70¢

Stove Bolts.

American Screw Co.'s	dis. 65 %
R. B. & W.	dis.
R. & E. Mfg. Co.	dis 65 %

FRENCH GLASS.

Too late for this issue we have received the new price list adopted by the importers of French Glass August 20. The discount now stands 75 and 10, and the list will be given next week.

PAPER STOCK, &c.

(Dealers' Selling Prices.)

	Cents ℔ ℔.
White Shirt Cuttings, No. 1	6¾ @ 7
" " No. 2	5¾ @ 6
Mill Assorted Whites	5 @ 5¼
Unbleached Muslins	5¼ @ 6
City Whites No. 1	4¼ @ 4¾
City Whites, No. 2	3¾ @ 3¾
New Canton Flannels	5 @ 5½
New Seconds, light	3¾ @ 4
" dark	3 @ 3¼
Cotton Canvas	4½ @ 4¾
Linen Canvas No. 1	4 @ 4½
Seconds, City No. 1	1¾ @ 1¾
Seconds, City No. 2	1 @ 1¼
Colors, ℔ cwt	40 @ 50
Manila Rope	3 @ 3½
" Tarred	2¾ @ 2¾
Gunny Bagging, No. 1	1¾ @ 1¾
" No. 2	1¼ @ 1¾
Kentucky Bagging	4 @ ....
Burlap Bagging, No. 1	2 @ 2¼
Tar Shakings	1¾ @ 2
Hemp Twine Stock	2¼ @ 2¾
Hard White Shavings, No. 1	2¾ @ 3
Soft White Shavings, No. 1	3 @ 3¼
White Shavings, No. 2, Soft	2¾ @ 2¾
Mixed Shavings, part White	2¼ @ 2¾
Ledger and Writing	2½ @ 2¾
Solid Stock	2½ @ 2¼
Book Stock, No 1, light	1 @ 1½
Old Newspapers	1¼ @ 1½
Pure Manilas	1¾ @ ....
Bogus Manilas and Hardwares, cwt	60 @ 100
Commons, ℔ 100 ℔	40 @ 50
Binders' Board Cuttings	⅛ @ ⅝
Straw Board Cuttings, ℔ cwt	60 @ 70

PAINTS, OILS, &c.

Paints.

Black, Lamp—Coach Painters'	℔ ℔	22 @ 24¢
" Ordinary		.... @ 6¢
Black Ivory Drop, fair		12 @ 15¢
" " best		.... @ 22¢
Black Paint, in oil	Kegs, 8¢; assorted cans, 11¢	
Blue, Prussian, fair to best		40 @ 55¢
" " in oil		45 @ 55¢
" Chinese dry		.... @ 70¢
" Ultramarine		18 @ 30¢
Brown, Spanish		1¾¢
" Van Dyke		10 @ 12¢
Dryers, Patent American	asst'd cans, 9¢; kegs, 7¢	
Green Chrome		15 @ 22¢
" " in oil		14 @ 18 @ 22¢
" Paris	good, 20¢; best, 25¢	
" " in oil	good, 30¢; best, 35¢	
Iron Paint, Bright Red	℔ ℔	2¼¢
" Brown	"	1¾¢
" Purple	"	2¢
" Ground in oil, Bright Red	"	6½¢
" " " Red	"	5½¢
" " " Brown	"	5½¢
" " " Purple	"	6¢
Litharge		6¼¢
Mineral Paints		2 @ 4 ¢
Orange Mineral		10¢
Red Lead American		6½¢
" Venetian (Eng.) dry		$1.65 @ $1.70
" " in oil	asst'd cans, 11¢; kegs, 8¢	
" Indian Dry		9 @ 12¢
Rose Pink		10 @ 13¢
Sienna, American Raw, powdered		4¢
" Burnt, powdered		4½¢
" " in oil		10 @ 16 @ 20¢
" Raw		11 @ 15 @ 22¢
Umber, Burnt, powdered		4 @ 6 ¢
" " in oil		9 @ 12 @ 15¢
" Raw, powdered		4 @ 7½¢
" " in oil		9 @ 12 @ 15¢
Vermilion, Chinese		90¢
" English		53 @ 58¢
" American, Common		15¢
White Lead, American, pure dry		6¢
" " " in oil		6¼ @ 6¾¢
White Paris, English Prime		2 @ 2½¢
Yellow Ochre, French		$1.75
" " " in oil	asst'd cans, 11¢; kegs, 8¢	
" " Vermont	In casks, 1½¢	
Yellow Chrome		17 @ 27¢
" " in oil		14 @ 18 @ 25¢
Zinc White, American No. 1, dry		5 @ 6¢
" No. 1, in oil		9¢
" French (Paris Dry)		5½ @ 7½¢
" in oil		10 @ 11¢

Oils.

Bleached Whale, ℔ gal	55 @ 58¢
" Sperm	$1.00
" Elephant	68¢
Drilling	40¢
B. & R. Best Valvone Cylinder	70¢
Engine	50¢
Fish Oil, Pressed	32 @ 34¢
Lard, Prime Winter	58¢
" No. 1 Extra	52¢
Linseed, Raw, in casks and bbls	48 @ 49¢
" Boiled, " "	51 @ 52¢
" Western, " "	44½ @ 45¢
Machinery	40¢
Miners' Oil	35 @ 45¢
Neatsfoot	60 @ 70¢
Signal	50¢
Tallow	5 8¢
West Virginia	11 @ 18¢

Sundries.

Asphaltum, Cuban	6½ @ 6½
" Trinidad Refined	℔ ton, $3.20 @ $3.25
Benzine	℔ gal. 8½ @ 9¢
Chalk	½ @ 1¢
" Block	¾¢
Crucibles No. 14 and upward, per number	3½¢
Emery 300 ℔ kegs	4¢
" less than 300 ℔	6¢
Frostings	40¢
Glue, White	34 ℔ 35¢
" Sheet	20¢
Glaziers' Points, Zinc, ℔ box	$5.00
Gum, Copal	36¢
" Damar	25¢
" Shellac, English	30¢
" " dark	25¢
Mineral Wool, ordinary, ℔ ℔	1 @ 1¼¢
" " extra	3 @ 3½¢
Pumice Stone, selected Lumps	4 @ 6¢
" " powdered	3½ @ 3½
Pine Tar, bbls	$2.25
Pitch	$1.70
Plumbago E. I. Fo., ℔ ℔	4 @ 6¢
" American, ℔ ℔	6 @ 10¢
" Gun Powder Glazing, ℔ ℔	10¢
" Shot Polish ℔ ℔	10¢
Putty, in bladders	2½¢
" in bulk	1¾ @ 2
Rosin—Common and Good—Strained	$1.35
" E & F	$1.47 @ $1.62½
" G & H	$1.70 @ $1.05
" I & K	$2.85 @ $2.25
" M & N	$3.85 @ $4.05
Spirits Turpentine, ℔ bbl	35 @ 36¢
Stove Polish, Dixon's, ℔ gross	$5.50
" Rising Sun "	5.50
" Gem "	4.00
" Jet Black "	3.00
Waste, No. 1 Cop	9¢
" No. 1 White Machine	9¢
" No. 2 White Machine	8½¢
" No. 1 Colored	6½¢
" No. 2 Colored	6¢
" Washed Machine	8½¢
Whiting, Spanish	5½¢

HARDWARE NOVELTIES.

The Hartman Bale Tie.

A new Bale Tie made by the Hartman Steel Company, Beaver Falls, Pa., is illustrated in the cuts. Fig. 1 represents the coils with the one next to main line inverted or turned over to form a noose which prevents the coil from unwinding when under strain.

Hartman Bale Tie.—Fig. 1.

Fig. 2 shows the tie with the free end of the wire introduced through the coils and bent at right angles with the main line. Fig. 3 shows the free end wound around the main line and bent back to the opposite end of the coils, and passed under the main line, making, it is claimed, a very strong connection, and one that will not slip when the strain comes upon it. The ends of the tie, when once connected, cannot, it is said, unfasten by the jar or action of the press. The

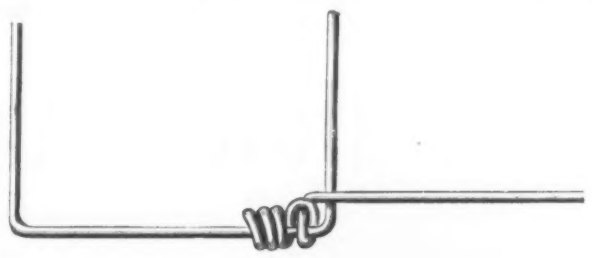


Fig. 2.

simplicity of the contrivance is alluded to as one of its chief merits, in that it is not liable to get out of order. The coil is funnel-shaped, which facilitates the introduction of the free end of the wire. Owing to the peculiar formation of the funnel or telescope

Fig. 3.

end, the makers say that it is necessary to use wire of good quality. Attention is also called to the low price at which the tie is furnished.

New Pipe Vise.

The Pipe Vise illustrated in the accompanying engravings, which is manufactured by F. Armstrong, Bridgeport, Conn., embodies

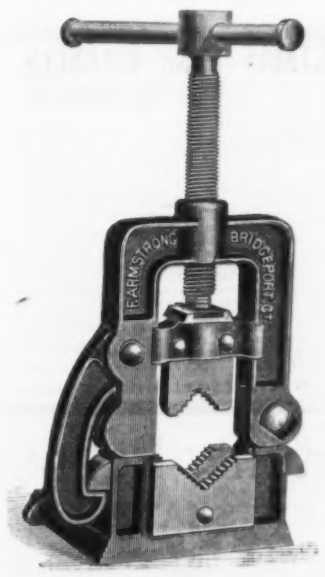


Fig. 1.—New Pipe Vise.

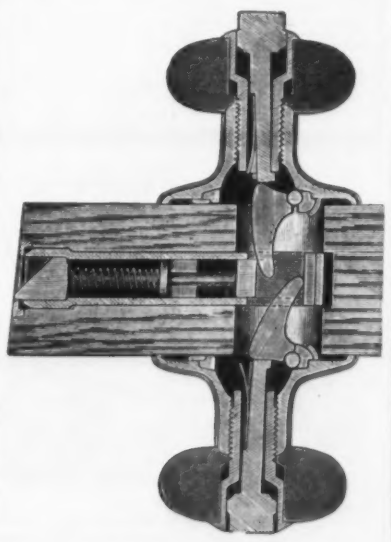
several principles that make it both useful and convenient. In its general features, so far as gripping the pipe is concerned, the vise resembles some that have preceded it,

Fig. 2.—Showing the Vise Open.

but in the combination of parts, whereby great strength and quick action is secured, and at the same time a ready release of pipe is obtained without drawing the same lengthwise through the vise, it seems to be specially adapted to the wants of plumbers, gas and steam-gtters. The lower jaw of the vise is in two sections, placed sufficiently far apart to permit the upper jaw to pass between. Each jaw is provided with a V-shaped notch, serrated on the edges, thus affording a strong grip upon the pipe when placed in position, irrespective of its size. The bearing is positive, and the distance between the two plates of which the lower jaw is composed is so slight as to make it impossible that the pipe should be bent. The uprights of the vise are in two pieces, one side being held in place by a bolt which acts as a pin in a hinge, when the opposite side is released by the latch-shaped lever which holds it down. How these parts operate is clearly shown in Fig. 2 of the engravings. The two sides are so constructed as to make the vise reversible, so that it can be opened from the right or the left, as may be the pleasure of the operator.

Prouty's Rigid Door Knob.

The cut below shows Prouty's Rigid Door Knob, of which the New England Butt Company, Providence, R. I., are the sole manufacturers. This knob is a new article, and operates in an entirely different manner from the ordinary door knob. Instead of turning the handle, as is usually done, to release the latch bolt, the door is opened by pressing a button in the center of the knob head. This button, or center piece, so called, ends in a square shank, as is shown in the cut, which presses against one end of a little curved arm of cast iron, which in turn acts upon an attachment at the inner end of the latch bolt in such a manner as to force the bolt back. Such is a general description of the method of operation, though probably a more exact idea may be gathered from a careful inspection of the sectional view. One of the principal features of this door knob is the way in which the several parts are fastened together, and to the door, no screw or bolt of any kind being visible on the outside. After the hole is bored through the door the knobs are fastened on by long screw bolts which pass through the door and fasten both of the cast-iron knobs firmly to the wood. Over these are placed the shells of finished metal, and the knob head of procelain or other material placed on top. Through the knob head and into the cast-



Prouty's Rigid Door Knob.

iron base is screwed a metal sleeve flanged outward at the top, which holds all the parts rigidly together. Inside of this sleeve or hollow screw is the center-piece before mentioned, which is held in position by a spring at one end. The outer end of the center-piece is marked on the same side as the spring To take the knob apart the center-piece is pressed sideways against the mark; by so doing the spring is flattened and the shoulder raised, thus permitting the withdrawal of the piece. The metal sleeve is unscrewed by a screw driver or an L-shaped wrench which fits into the square hole. The other parts are removed by loosening the two screws before mentioned. It will be seen from the cut that these door knobs require a special lock or latch, of which the New England Butt Company are also the sole manufacturers. The knobs, of which there are several different styles, are made of bronze, porcelain, jet and hemacite. Among the advantages claimed for these knobs are the secure manner in which the knob heads are fastened, making it impossible to loosen them or pull them off; the ease with which doors may be opened when one's hands are occupied; their adaptability to doors of different thickness, and the firm method of fastening them, which prevents any loosening or displacement of the parts.

New Sash Pulley.

The Palmer Mfg. Co., of Troy, N. Y., are putting upon the market a new article in the way of sash pulleys, which is known as Palmer's Common Sense Pulley, engravings of which are presented in Figs. 1 and 2 of the illustrations. The face of this pulley, instead of being square, like those commonly used, is made to fit a series of holes such as would be made with a common auger bit. The three center ones are bored through the window jamb, while the two end ones are made only deep enough to lay the face in flush with the surface of the jamb. When the holes are bored as described the mortise is entirely clean, and nothing remains but

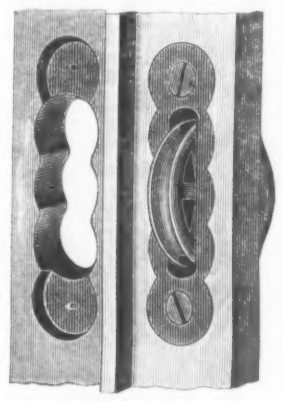


Fig. 1.—Palmer's Common Sense Sash Pulley.

to drop the pulley in its place and put the screws in the holes which have already been made by the center of the bit used in boring the mortise. In Fig. 2 we show one of the pulleys complete, while in Fig. 1 a mortise hole ready to receive the pulley is shown. At the right a pulley is shown in place in the frame. Based on the average of actual tests made under their directions, the makers claim that ten of these pulleys can be applied to one of the ordinary square-face variety. They claim, further, that a better and handsomer frame is produced by its use than with any other pulley in the market; also that as many, if not more, of these pulleys can be applied in

Fig. 2—The Pulley Detached.

a given time with a boring machine such as is to be found in every wood-working establishment as can be applied of the common kind with any special machine made for such work alone. One of the leading features of this device is its adaptability to the facilities of all users of pulleys. The adoption of this pulley is not attended by any outlay whatever in the way of preparation. The only special tool required is a die for marking the centers of the five holes to be bored for putting the pulley in place, and such a tool is furnished gratis by the manufacturers.

Self-Locking Blind Adjuster.

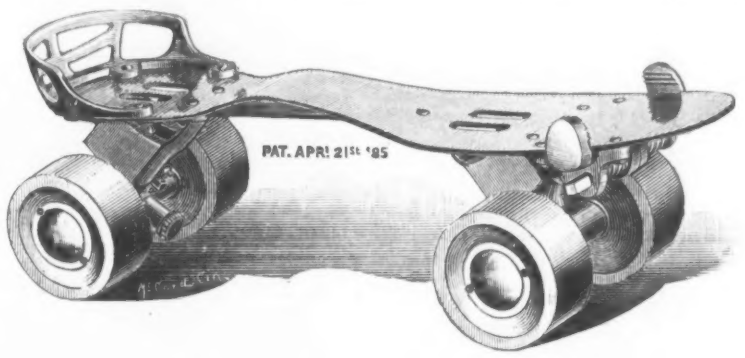
Washburn's Improved Self-Locking Blind Adjuster, manufactured by D. B. Washburn, 151 Congress street, Boston, Mass., is presented herewith. The special features to which the maker directs attention are that there is no cutting of the blind or sill, and that the same fixture is adapted to all kinds of blinds. The general features of this device are clearly shown in the engraving. The bracket attached to the blind is of such a form as to bind the bottom rail and stile together, so that the application of the fixture greatly strengthens the blind where the

Washburn's Self-Locking Blind Adjuster.

principal strain comes. To this bracket a rod is attached in such a manner as to be held level with the bottom rail of the blind, thus preventing the possibility of its becoming bent or broken between the blind and sill when accidentally loose. The hook on the end of the rod springs into the holes of the fixture on the sill in such a way as to hold the blind securely and at the same time noiselessly. The relationship of the pin which secures the rod to the fixture fastened to the window to the pin of the hinge is such that the rod permits of two adjustments of the blind when engaging in the same hole in the fixture on the sill. The blind partially opened in the engraving is shown held by the rod engaging in the middle hole in the sill fixture. As the blind is closed the rod is engaged in the hole nearest the hinge, as shown in that view of the blind shown at the right. On the other hand, when the blind is wide open—that is, swung clear back—the rod would engage in the supplementary fixture shown between the end of the rod in the cut and the blind hinge. When in this position the blind is firmly fastened back in such a way as not to be liable to be torn off by a high wind. When the blind is closed, as shown at the right in the cut, it is doubly secured, first by the usual catch and also by the hook of the adjuster.

The Evans Anti-Friction Roller Skate.

The Evans Skate Company, 177 West Fourth street, Cincinnati, Ohio, manufacture the Evans Anti-Friction Roller Skate, which is illustrated in the cuts The main feature of this skate is the peculiar bearing for the wheels. By referring to the sectional view in Fig. 2 it will be seen that the axles revolve upon steel bars of equal length, which



Evans Anti-Friction Roller Skate.—Fig. 1.

are inclosed in a cylinder of malleable iron, the ends of the cylinders being enlarged, so as to prevent wear. This bearing, which in principle is like the ball bearing, is spoken of as reducing the friction to a minimum. As the axle and not the wheel turn on these rods, an ordinary wheel can be used with the skates. At the center of the bearing an oil cup is attached, the opening being closed with a screw cap. By this means the bearing is lubricated automatically, the few drops contained in the oil cup being claimed sufficient to keep the skate perfectly lubricated for several days. Special attention is called to the point that the oil cup is patented to hang below the center of the axle, so that instead of the oil being immediately used up it is supplied according to the rapidity with which the anti-friction rods revolve. The

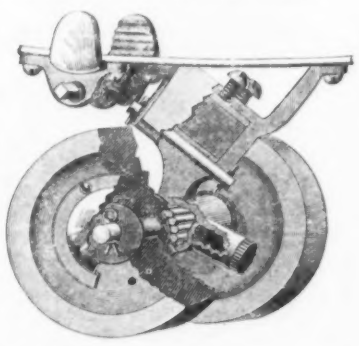


Fig. 2.—Sectional View, Showing Anti-Friction Bearing.

tension screws, one of which is shown in Fig. 2, bears on a small iron plate, which in turn rests on top of the rubber cushion, the latter being inclosed on all sides. By altering these screws the action is made stiff or easy, to suit the skater. Another advantage mentioned in this connection is that when one side of the rubber becomes worn the tension can be adjusted by simply tightening one of the screws, instead of having to replace the rubber. The length of the axles, which are longer than usual, is for the purpose of giving a better purchase on the floor and preventing slipping. The plan followed of inclosing the rubber is not only to allow of the adjustment mentioned above, but also to protect it from injury and prevent the oil from destroying it. The bearing-rods and axles are described as made of Stub's steel, and the skate is strongly made and well finished throughout.

The organization of the Troy Steel and Iron Company, the successors of the Albany and Rensselaer Iron and Steel Company, has been affected by the election of the following officers: Chester Griswold, president; Erastus Corning, vice president; Selden E. Marvin, secretary and treasurer, and R. W. Hunt, general superintendent. They closed the contract on the 28th ult. with J. P. Witherow, of Pittsburgh, for three blast furnaces of the latest modern type, each furnace being 18 feet bosh, 80 feet high, driven by seven blowing engines with 42 inch steam cylinder, 84-inch blast cylinder, and 60 inches stroke, with ample boiler capacity. The furnaces will have nine Whitwell stoves, 20 feet in diameter and 60 feet high. The blow-foundations and connections are being arranged for the addition of three extra stoves. The chimney for the whole plant will be one wrought-iron shaft lined to a clear way of 13 feet, and will be 200 feet high. The blowing engines are to be built by the Dickson Mfg. Co., of Scranton, Pa. The capacity of the plant is expected to average 3000 tons of iron per week, coal and coke being used as fuel, and Hudson River and Chateaugay ores. It is stated that, with the contracts already made with the ore companies and the railroads, the Troy Iron and Steel Company will be enabled to make pig iron at $14 per ton. The projected new plant of three furnaces will be supplemented by an additional plant of the same size after completion. Ground has been broken and it is expected that the furnaces will be in blast by December 1, 1886. We are informed that the company have also concluded to change one of their present Bessemer converters to that of the Clapp-Griffiths type to produce a soft steel for their special requirements, and will during the coming fall add a complete Clapp-Griffiths plant to the present Bessemer equipment.

Effect of Incasing Wood with Iron.

It was always expected since first wooden ships were clothed with armor plates that they would speedily decay, and this anticipation has been abundantly realized. The only excuse for the armor plating of some wooden vessels now in existence was the fact that these vessels were already built or building, and were of no use at all unless so protected. When once those ships were completed that happened to be on the stocks when ironclads were proved to be an absolute necessity, no other wooden ironclads were laid down but iron ships took their places. In France wooden ironclads continued to be built until within the last eight years, and it is this fact which has doubtless induced the French Admiralty to lay down so many iron and steel ironclads since that time. It is the closely-fitted wooden backing on the outside and planking on the inside which prevents air from getting at the unseasoned oak timber of the frames, and this causes the juice of the timber to ferment, and so induces the growth of the peculiar fungus known as dry rot. An examination of the English wooden ironclad fleet, a few years ago resulted in the vessels being almost entirely condemned and the British Admiralty are now turning them into money by selling them to the ship breakers. While vessels less than 25 years old are thus being broken up on account of rottenness, it is interesting to notice the number of two and three decked wooden ships—some of them nearly 100 years old, and none less than 30 or 40 years old—which still survive. These were built of seasoned timber before the age of hurry set in.

The "largest steel casting" is still under discussion. S. T. Wellman, superintendent of the Otis Iron and Steel Company, of Cleveland, writes to the *American Machinist:* "I see by your issue of July 18 that the Standard Steel Casting Company, of Thurlow, Pa., have made what they believe is the largest steel casting yet attempted in this country, weighing 27,000 pounds. About a year ago we made for our own use a pair of steel rolls weighing each, when finished, 31,000 pounds. The charge in the furnace for each weighed 42,000 pounds. They turned up as perfectly as any iron roll could be made. Besides the above we have made several steel castings which weighed in the rough from 30,000 to 34,000 pounds."

As showing the disabilities experienced by rag importers in New York under the rules for sanitary inspection, Mr. McClintock, of the firm of Lockwood & McClintock, says: "Three months ago the ship Vigilante arrived from Hiogo, Japan, with 600 tons of rags for us. They were passed by the Health Officer, and permits were issued to land them, but the collector recommended that they should be disinfected, and we haven't got the rags yet. The rags were worth, on arrival, about $32,000. The disinfection charges amounted to about $6000 dollars. They have been damaged to the extent of ½ cent a pound, as we are informed, and during the three months' delay the market has declined ½ cent. We have therefore lost $17,000 on this cargo alone."

The Baltimore and Ohio Telegraph Company are successfully laying underground wires in Washington City. The system used is called the Averill insulating conduit. The wires are laid in a trench 1 foot wide and 8 inches deep, with sides and bottom of hydraulic concrete. The insulating material is composed of powdered silica and asphalt, in which naked copper wires are laid by a machine in courses of 10, the courses being separated by layers of the insulating material. The prism now being constructed contains 60 wires. This is the first instance of the adoption of this system by any telegraph company.

Fraser & Chalmer's Works, in Chicago, are running full in all departments. This firm are at present constructing several mining-machinery outfits for the Black Hills and other parts of the country. They are negotiating for the purchase of more tools and machinery for their works.

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INDUSTRIAL ITEMS.

MASSACHUSETTS.

The Pierce Steam Heating Company are making preparations for the removal of their works from Westfield to Buffalo, N. Y., where the company have just completed some immense buildings for foundry and machine work.

Fair Point Silver Works, at New Bedford, will begin to run full time October 1, instead of four days a week, as formerly announced.

The Curtis Regulator Company, Boston, have just finished a large pressure regulator for the water works of the City of Moscow, Russia.

All the departments of the Waltham Watch Factory are now running and on full time An indefinite shut-down, however, has been made at the large factory of the Boston Mfg. Co., throwing fully 600 persons out of work. One or two departments are still running for a short time on some special or unfinished work, and the hosiery department in connection with the mill has not shut down. Sixty workmen at the Watch Tool Company's Works are also unemployed on account of the shut-down there.

CONNECTICUT.

The Southington Cutlery Company are still busy in their wood screw department. They continue to operate the screw department 11 hours per day.

The Etna Nut Company, of Southington, have resumed operations. Their mills have been closed for three weeks.

It is reported that unless something more is done immediately about organizing the Drew Mfg. Co., in Middleton, to manufacture a patented gas and water cock, the company will be formed in some other town.

The Atwater Company are running their carriage hardware shop, in Southington, only three days a week.

The Weed Sewing Machine Company, of Hartford, at their annual meeting last week, voted to reduce their capital stock from $600,000 to $240,000, by changing the par value of shares from $25 to $10. In 1871-72 this stock was quoted at from $300 to $350 per share.

RHODE ISLAND.

The Armington & Sims Engine Company, Providence, are now running nightand day, having orders for over 50 engines ahead.

NEW YORK.

For but three months in the past 33 years have the fires been allowed to die out entirely at the Poughkeepsie furnaces of the Poughkeepsie Iron Company. The company own two stacks, either one or the other, and most of the time both, of which have been in blast during the whole time mentioned, except during a miners' strike, when both stacks had to blow out for want of coal.

Messrs. Isaac G. Johnson & Co., with works located at Spuyten Duyvil, are experiencing a very satisfactory business. Their product is meeting with a good demand, and they are running with a full force of workmen. The company report that, notwithstanding the fact that they largely increased their capacity something like two years since, they find themselves at present running nearly a month behind on orders. They manufacture as a specialty small steel castings adapted to a variety of purposes.

PENNSYLVANIA.

The Pittston Engine and Machine Company, West Pittston, are building the following: One pair hoisting engines, 12 x 20 inch cylinder, for Northwest Coal Company, Carbondale; one pair hoisting engines, 150 horse-power, with cone drums, for Thomas Waddell & Co., Mill Hollow; six steel boilers, 34 inches diameter, 50 feet long; six steel boilers, 26 inches diameter, 50 feet long, for Delaware and Hudson Canal Company, Scranton, and four stacks 48 inches diameter, 110 feet long, made of ⅜ inch iron, for the Susquehana Coal Company, Nanticoke.

McKee & Milson, Bethlehem, have recently completed two 100 horse-power boilers for the South Bethlehem Water Works, and have contracted to furnish the ironwork for a new furnace being built by the Andover Iron Company, Phillipsburg, N. J.

The Thomas Iron Company are erecting a new hot blast at the furnaces at Hokendauqua, a large number of men being employed on the work. The heavy bed castings have been received from I. P. Morris & Co., Philadelphia, and Messrs. Davies & Thomas are making the pipe castings. A new chemical laboratory has been staked out between the company's office and pattern shop, Hokendauqua, which will be built at an early date and furnished with every improvement of modern design. Mr. Clemens Jones, of Easton, has been appointed chemist, and will enter upon his duties next month.

The Lebanon Mfg. Co. have a large lot of orders on hand for work, which will keep all hands busy for several months yet if none others should come in, but almost daily new orders are received and more men are being put to work. A few days ago an order was received from a large firm in Chicago for a lot of work which in itself gives employment to quite a number of blacksmiths, machinists and molders, Six to eight ton heats are run down in the foundry daily, and large orders for the Wallace patent plow are being filled.—*Lebanon News.*

False reports concerning the Wheeler Iron Company, at Sharon, to the effect that after buying the Davy process for the conversion of iron they had been enjoined from using it, have been circulated. The facts are briefly as follows: The Wheeler Iron Company bought a one-half interest in the Davy patent for the manufacture of steel. When it was shown that there were other patents which did or might conflict with his, Mr. Davy returned the purchase money and left the matter to be adjusted hereafter as his interest may appear. No one has asked for or obtained any injunction against the "Sharon Syndicate," and they expect to go on and operate under Davy's patents as soon as others now pending are issued to him. There has been no conflict or misunderstanding between the company and Mr. Davy, and no outside interference.

The Hellertown Furnace will be blown in a fortnight, after having been thoroughly overhauled and repaired.

The Bryden Horse Shoe Works, of Catasauqua, have placed in operation a new clipping machine, which is pronounced a great improvement upon the one formerly used. The works continue busily employed.

The Jefferson Furnace, at Port Clinton, Schuylkill County, has resumed work after being idle for over a year.

Norway Furnace, at Bechtelsville, Berks County, which has been operated under lease by Gabel, Jones & Gabel, has been relined and blown in. The furnace is run chiefly on Boyertown ore.

McKee, Anderson & Co., proprietors of the Beaver Falls Rolling Mill, are experimenting with old steel rails, which they are trying to roll into sheets and bands. If the trial is successful they will run steadily on this kind of work and will use natural gas.

From August 6 to 13, one week, the Valley Iron Works, Williamsport, booked orders for engines as follows: R. Innes, Bodines, one 15 horse-power; J. C. St. Clair, Rygate, Conn., one 15 horse-power; J E. Kirk, Clearfield, one 15 horse-power, with pulleys, shafting, &c.; Pennsylvania Hoop Company, Williamsport, one 60 horse-power; Norton Mfg. Co., Walpole, Mass., one 70 horse-power; J. W. Ruger & Co., Buffalo, N. Y., one 40 horse-power; George G. McLoughlin, Boston, Mass., one 15 horse-power, one 25 horse-power and one 40 horse-power; T. C. McKinney, Buxton, Me., one 50 horse-power.

The establishment of Sotter Bros., Pottstown, is very busy at present. They have just received contracts for 10 100-horse-power boilers for the new steel works of the Pottstown Iron Company, two 55-horse-power horizontal tubular boilers for Philadelphia parties, and also the work of overhauling and repairing the boilers at the Leesport Furnace. In addition to these they expect several other contracts.

The bridge works of Messrs. Cofrode & Saylor, at Pottstown, are constructing two bridges for the Reading and Pottsville Railroad—the continuation of the Pennsylvania Schuylkill Valley line. One is to be erected over the Schuylkill at Hamburg, a single span 175 feet in length, and the other at Auburn, four spans and about 600 feet long.

PITTSBURGH AND VICINITY.

Four days ago a blooming roll broke at the Joliet (Ill.) Steel Works, causing a suspension of the plant and throwing 3000 men idle. The Phœnix Roll Company, of this city, were ordered to make a duplicate with all speed possible. Last evening the roll was completed after 73 hours' continuous labor. This is considered a remarkable feat. The roll was at once shipped to its destination. The employees of the works felt proud over the accomplishment.—*Chronicle-Telegraph.*

Chess, Cook & Co.'s muck-bar mill, on the Southside, started up last week after 13 weeks' idleness. The mill contains 24 furnaces, employing about 75 men.

Carnegie Brothers & Co. are making improvements at the blast furnaces of the Edgar Thomson Steel Works, at Braddock. D furnace is relining and a new Whitwell stove is being added. The furnace is one of the largest. During an 18 months' run with one month's banking it made a product of 94,000 tons. They are also putting in a new bell and hopper.

The firm of Smith, Sutton & Co., operating the La Belle Steel Works, have been dissolved by the withdrawal of the Messrs. Sutton and Mr. B F. Jennings, and a new firm have been organized under the name of Smith Brothers & Co.

Washington Beck, whose glass mold shop was burned down recently, has pushed forward repairs with the greatest energy, and is now running full in all departments.

Shoenberger, Speer & Co., who have for some months being remodeling their blast furnaces, blew in one of them last week, and report that she is working well.

The officials of the Atlas Works have signed a contract for the furnishing of a mill and shears to the steel works at Plano, Ill. They have just completed a mill for J. Harris & Co., of St. Johns, N. B.

The fame of the hoisting machinery built by the Scaife Foundry and Machine Company for the Penn Inclined Plane Railway, which was completed about a year ago, has reached to Southern Russia. A similar incline is being put up at Kiew, on the River Dnieper, and the above named company have been requested to prepare and forward bids for the hoisting machinery for it.

The Pittsburgh Plate Glass Company, at Tarentum, have staked off the ground upon which they propose erect an additional factory and buildings for the production of glass. The business has increased to such an extent that these increased facilities are made imperative. The buildings in use now cover 10 acres.

The Dexter Spring Company, of Verona, are making some large improvements in their works. They are building an addition and fitting it up nicely. An elevator, among other things, is being built, and it is the intention of the company to fit up a printing department in the new part of the factory.

"The rivets, upon which the strength of the whole structure depends, are probably the most reliable, uniform and tough material ever used for the purpose." This is what was stated by the Naval Advisory Board in regard to the ship Dolphin. The Pittsburgh Steel Casting Company furnished 100 tons of rivet steel for the cruiser, and feel flattered by such a good report, coming from such a high source. This company are now preparing a large number of tests to show the great uniformity of their refined Bessemer steel, which they will soon publish.

OHIO.

The Van Dorn Iron Works, of Cleveland, have been awarded the contract for building about 8000 feet of iron fence for the Fairmount Reservoir, in that city. The Van Dorn patent wrought-iron fence will be used.

The Union Rolling Mill Company's mill, at Cleveland, is running steadily, with 350 men employed in the five departments. The puddle furnaces use about 35 tons of pig iron daily. The product consists mainly of shafting, light T-rails and carriage, nut and bolt, bridge and general merchant iron. Their Emma Furnace has a capacity of about 100 tons every 24 hours, and about 75 men are employed in the prodution of pig iron.

A party of citizens of Ironton and Hanging Rock, including both capitalists and practical workingmen, are discussing the matter of organizing a company to start the Hanging Rock foundry.

The Crescent Iron Works, at Pomeroy, will be sold at assignee's sale next Saturday. The works were last operated by T. A. Watson & Co., who, it is stated, spent nearly $100,000 in improving the plant. It is now appraised at $33,000.

The breaking of the muck-roll engine will necessitate the shutting down of the puddling department of the Trumbull Iron Company, at Girard, for a week.

ILLINOIS.

John Mohr & Son, of Chicago, have in course of construction at their works 24 boilers, besides a lot of tank work. Eight of the boilers named go to Wisconsin; the others to Ohio and Illinois. They are now giving employment to 125 men, and will soon give work to 50 or 60 more.

Wm. Frech, of Chicago, is building a new punch and shears combined for cutting angle and flat irons, and an improved tool for making butts and hinges. There is in progress at these works a molding machine which in its construction will differ from anything now on the market.

The Chicago Safe and Lock Company are engaged on a large amount of jail and bank work, and are also making about 100 miscellaneous burglar-proof safes. Some 65 men are employed, and the force will soon be increased to 100. New machinery is to be added. A Siemens furnace for annealing and tempering steel, and a hardening tank, are among the recent acquisitions of the plant. A new combination lock is being turned out.

MICHIGAN.

An announcement of a 10 per cent. reduction in wages, the first in eight years, caused a strike among the employees of the Michigan Bolt and Nut Works, of Detroit, and the works may shut down indefinitely.

INDIANA.

The Terre Haute Iron and Nail Works have notified their puddlers and other forge hands that their services are no longer required. The company is a part of the syndicate which recently leased the Vulcan Steel Works, at St. Louis, and will hereafter use soft-steel nail slabs made at the latter works.

MISSOURI.

The syndicate which recently leased the Vulcan Works, St. Louis, has organized under the title of the Western Steel Company, with Mr. A. M. Wilcox as president.

On the 25th ult. an incorporation license was granted the St. Louis Manganese Company, of East St Louis. The object of the company is to mine and purchase manganese and iron ores to sell. Capital stock, $1,000,000. The incorporators are L. S. Lapham, John W. Gilbraith and William Einstein.

ALABAMA.

Ten thousand dollars capital has been subscribed for a soap factory in Birmingham.

The Woodward Iron Company, at Wheeling, 12 miles from Birmingham, has contracted for part of the material for a mate to its furnace, which has a capacity of 80 tons a day. The wrought-iron work will be done in the company's own shops and the castings will be made in Birmingham. Facilities for heavy casting and making firebrick are about all this concern lacks to make it independent of everybody else, as it gets out its own ore, limerock and coal and burns its coke.

The Curry Brass Company, incorporated at Birmingham last winter to manufacture presses of various kinds after the patent of a Mr. Curry, of Huntsville, intend building small cotton compresses at several places in the State, including Birmingham. They have one already under way at Decatur.

The Anniston and Atlantic Railroad has just completed a track to a marble quarry at Wewoka that promises to do an extensive business.

A paint factory is to be planted at Montgomery to utilize yellow ocher mined at Coosada.

A promised new industry at Birmingham is a bolt, nut and nut-lock factory, to bear the name of one of the largest stockholders, a Mr. Dodson, now resident in St. Louis.

Work has begun on the extension of the Tennessee and Coosa River Railroad, formerly the East and West Alabama Railroad, from Attalla to Guntersville.

A sash, door and blind and furniture factory is to be built at Calera soon. It will possibly make wagons also.

Fifty thousand dollars have been subscribed in Birmingham to take $100,000 worth of a proposed issue of second-mortgage bonds of the Georgia Pacific Railroad in behalf of the completion of the road to Columbus, Miss., there being a gap of some 40 miles to build The subscription was a condition named by New York capitalists who think of putting in the bulk of the money needed for the extension.

It is announced by respectable authority that the Sheffield Improvement Company are preparing to build two iron furnaces at Sheffield, the projected city on the Tennessee River.

The Mary Pratt Furnace, at Birmingham, having been relined, is drying out to go into blast again next week.

R. W. Boland, wrought-iron worker, Birmingham, has undertaken a new departure. The county has just given him an iron bridge to build, and he purposes giving this line of work especial study, with a view to going into it regularly. He got his contract by outbidding a number of Northern concerns, one of whom (the King Bridge Company, of Cleveland, Ohio) was awarded two other bridges at the same time.

Some of the men who were thrown out of work by the shut-down at the Anniston Car Works, which are in the hands of a receiver, are operating them again in a small way. The receiver gives them the use of the plant pending a disposal of the property that will give them work again. Work has been resumed on the Anniston Rolling Mills, which are not far from completion. The Union Warehouse and Elevator Company have been organized at Montgomery, with $300,000 capital. They purpose building a big grain elevator, and cotton pickery, ginnery and compress.

The Results of the Year's Building Business.

The September number of *Carpentry and Building* contains an article bearing the above title, which presents facts and figures that cannot fail to be of interest to our readers as showing the condition of an important industry:

A few months since we presented a general survey of the building prospects of the entire United States. Our report was based on advices from a large number of correspondents located not only in the prominent centers of the building industry, but also in all the other towns and cities throughout the Union. At that time we pointed out that, while the year's business in a few prominent cities and in certain favored sections of the country was likely to be very active, there were other localities in which the indications pointed to unusual dullness and depression, yet the aggregate would show for the year an average amount of building. Since the publication of that report the season has so far advanced as to warrant a second examination of the field from which to judge how far our predictions are being realized. *Bradstreet's* correspondents in leading cities throughout the United States have recently given the question of the amount of building being done very careful attention, and their reports, with information derived from our own resources, form the basis of the following very general account. Our contemporary, in referring to this matter, points out that the era of depression in trade has at last had its effect upon the building industry as well as elsewhere. Real-estate investments have been among the last to feel the effects of hard times, but they are generally among the first to recover therefrom. When other forms of investments appear of doubtful desirability, capital is ever ready to flow into city real estate. When taking the form of improvements on real estate, however, the investments are more likely to show the effects of a prolonged period of stagnation in trade.

In attempting a summary of the building business in the leading cities the inquirer is met at the outset with discrepancies in the methods of managing building permits in the different places. For example, in Philadelphia, only the total number of building permits issued is available, while in some of the other cities not only the total number of permits, but their cost, is given. Hence there is no adequate basis of comparison. According to the books of the building inspectors in Philadelphia, there has been a steady growth in building enterprises in that city for several years past. In 1883 permits for the construction of 4390 new buildings were issued. In 1884 the number was 4999. For the first six months in the present year there were issued 4427 permits for new buildings and alterations. Owing to the method of keeping the records in this city a separation of the items so as to show the proportion of entirely new buildings is not possible. Everything points, however, to a large increase in the aggregate for the year.

In Boston the figures given for the new work authorized since January indicate that the total number of brick buildings put up or begun this year will be about 20 per cent. less than last year, and of wooden buildings 13 per cent. more than last year. While it is not likely that the permits for the entire year will be exactly double those of the first half, the approximation will be close enough for an estimate. The falling off in brick, stone and iron permits in this city is noteworthy. This diminution points to a considerable reduction in the expenditure for new structures as compared with last year. The gain in number of miscellaneous wooden structures in point of cost will by no means offset the loss on more substantial work. Beyond the continuation of work on a few large buildings begun some time ago there is comparatively little doing in the business part of the city, nor is there much special activity in the suburbs. In the outlying suburban towns and cities within 10 miles of the City Hall, Boston, relatively more dwellings have gone up within a year or two than inside of the city limits.

In New York City the cost of the new buildings already projected is quite up to the record at the same time last year. A short drive about this city is all that is needed to convince one of the enormous sums going into palatial new business structures, or into long rows of apartments or other residences. The costs of buildings erected in this city in 1882, according to the records of the department, were in round numbers $44,800,000. In 1883 they were $44,300,000. In 1884 they were $41,500,000, while for the first six months of the present year they aggregated $25,800,000.

At Pittsburgh the number of buildings being erected is not as large as the like portion of the two preceding years, yet those now going up are of a better class, and it is thought the amount invested before the close of the year will fall but little, if any, short of 1883. Two prominent public buildings are in progress in that city. The county is erecting a court house and prison at a cost of $2,225,000, while the United States Government is building a custom house and post office at a cost of $2,000,000. The number of permits issued in Pittsburgh during 1884 was 1846, aggregating a cost of $3,262,000. For the first six months in the present year there have been issued 650 permits, representing an expenditure of $1,500,000. The public buildings above referred to are not included in these figures.

In the Northwest, represented by St. Paul and Minneapolis, the building business is perhaps almost as active as anywhere in the country the present year. At the same time the sum total being invested in these two towns, in the light of figures published, appears to be slightly less than any year just preceding. In St. Paul last year there were three or four exceptionally large buildings and blocks put up, among which may be mentioned the Hotel Ryan, the cost of which alone was $1,000,000. Another important building was the German-American banking house. The improvements for the present year, it is estimated, will reach fully $6,000,000. A court house is in progress which costs $700,000 At Minneapolis we are informed building operations will show a full average as compared with preceding years. The improvements in that city during 1884 aggregate $7,600,000, as compared with $6,400,000 for the preceding year. For the first six months of the present year 1670 permits have been issued, representing an expenditure of $3,500,000.

The most rapid increase in the construction of new buildings at any large city, as shown by the figures before us, has been in San Francisco. According to the *California Architect and Building News*, the improvements in that city in 1883 amounted to $5,262,000 In 1884 1127 permits were issued, representing an expenditure of $6,300,000. For the first six months of the present year 741 permits were issued, representing improvements to the value of $4,500,000. The total for this year shows a gain of nearly 500 per cent. per annum over what was done in 1880. The increase has been steadily maintained during 1884 and 1885, notwithstanding dull times.

In the enterprising town of Burlington, Iowa, the improvements in 1883 were valued at $600,000. In 1884 they represented $400,000, while for the first six months of the present year they represented $300,000. The value of the buildings reported for 1883 was swelled by a few specially heavy items, including a grain elevator at $200,000, a block of offices and a church. For the six months just closed the permits have included no specially large items. From this it will be seen that during the present year there has been particular activity in that city, and this has been manifested in the erection of small dwellings, which, we are informed, are mostly frame, costing from $800 to $1500 each, and a few residences ranging from $3000 to $10,000 each. It is estimated that there are at present about 200 dwellings in process of erection in that city. Reviewing the building operations of Burlington in a general way it may be said that, omitting buildings of a special character and size, there was a slight increase in 1884 over the previous year, while so far in 1885 there has been a much larger number of buildings erected than in any corresponding seasons heretofore.

There are many other towns and cities in the country concerning which a similar array of figures would be of interest, but the space which we can devote to this subject, as well as the lack of figures in some instances, prevents their publication. At Augusta, Ga., there is less building going on than at any time in four years. At Memphis, Tenn., the buildings erected the present year are mostly cottages and residences, while in the two years previous a larger proportion of business houses was put up. At Indianapolis there will be almost as much building this year as last, but not so much money has been spent on repairs. The buildings put up are mostly homes; there is not much doing in the erection of business blocks or manufacturing establishments. At Savannah, Ga., the building boom still continues. The result is that the city is extending its limits to meet the wants of a growing population. The aggregate improvements for the first six months of the present year in Nashville, Tenn., are given at about $230,000. The total for 1884 was about $530,000. In Chicago the investments in buildings this year are considerably less than last year. Many enterprises commenced during 1884 have been completed during the present year, and mechanics have been kept fairly busy. The building business is only moderately active in Cincinnati, Louisville and St. Louis. Throughout the large number of cities and towns and in the agricultural districts of the Eastern, Central and Western States building operations are fairly active, although not fully up to the high-water mark of the last two years. Mechanics are fairly busy, and in most instances they will be kept employed to the end of the season.

Our contemporary quoted above presents some totals that may be of interest to our readers: The number of new buildings erected in 16 leading cities of the country in each of the last three years is given, and also their total cost. The cities included in this estimate are as follows: New York, Boston, Philadelphia, Pittsburgh, Indianapolis, Detroit, Leavensworth, Chicago, St. Paul, Minneapolis, Burlington (Iowa), Nashville, Memphis, Savannah, Augusta and San Francisco. Other cities might have been included in the list, and we suppose it has been made up as it is only on account of the information at hand, and not on account of the relative importance of the cities as named. The total number of new buildings in these cities during 1882 was 20,261. In 1883 the new buildings numbered 24,096. In 1884 the total number of new buildings was 28,020. The cost of the new buildings is in similar proportion. In 1882 the aggregate value of improvements in the cities named was $97,835,000. In 1883 the total was $102,450,000. In 1884 it was $102,868,000. From this general survey of the situation, notwithstanding that it lacks many details that our readers would be glad to see presented, it will be noticed that the building business has not yet suffered in proportion to other industries in the hard times that we are now experiencing. It is yet too early to prophesy for a new year, but all have reason to be satisfied with the present outlook, and all have cause to congratulate themselves that things are not nearly so bad as they might be, all things considered.

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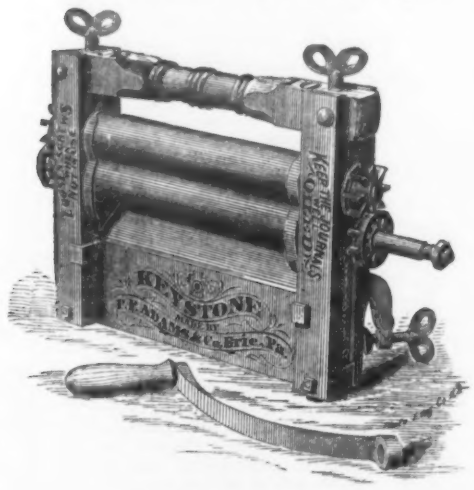

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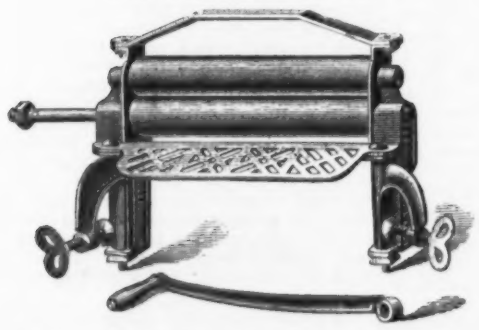
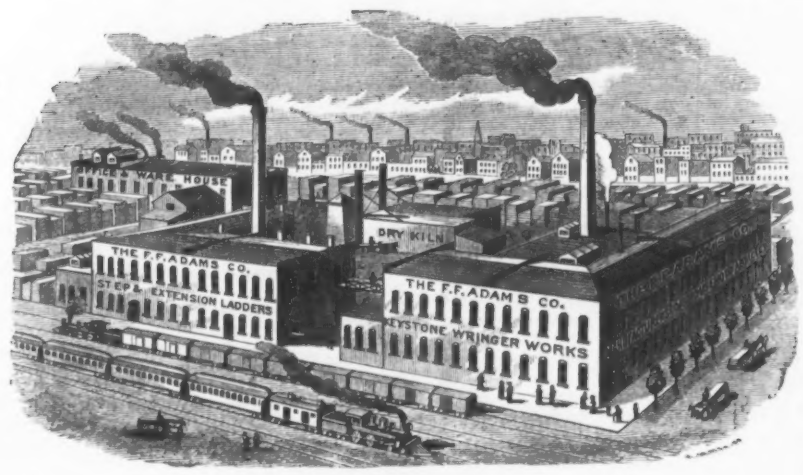


Adams' Patent Machine for Drawing Corks.



Keystone Double Bench Wringer.

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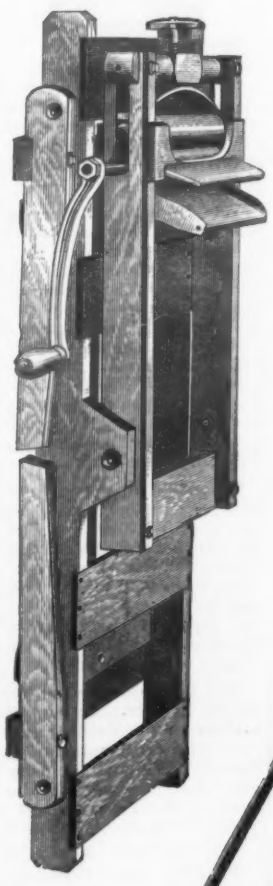

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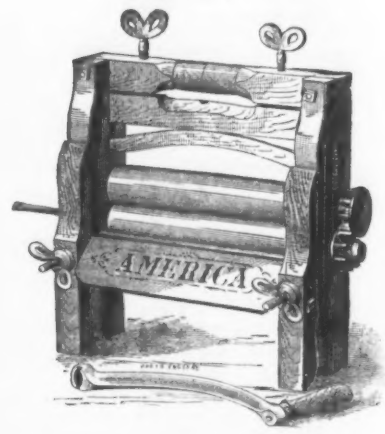
No. 8, Family Size.



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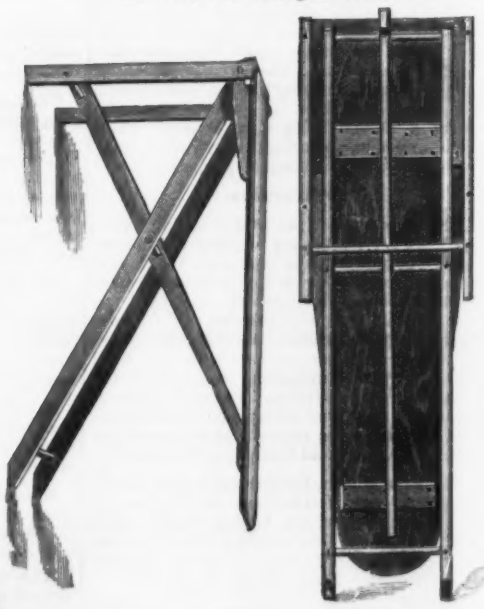
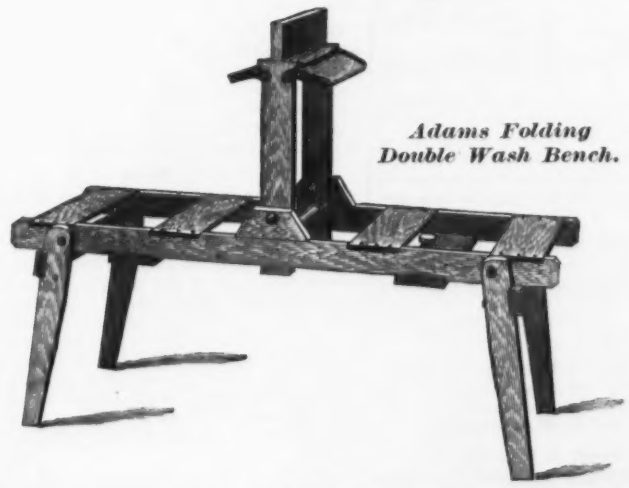
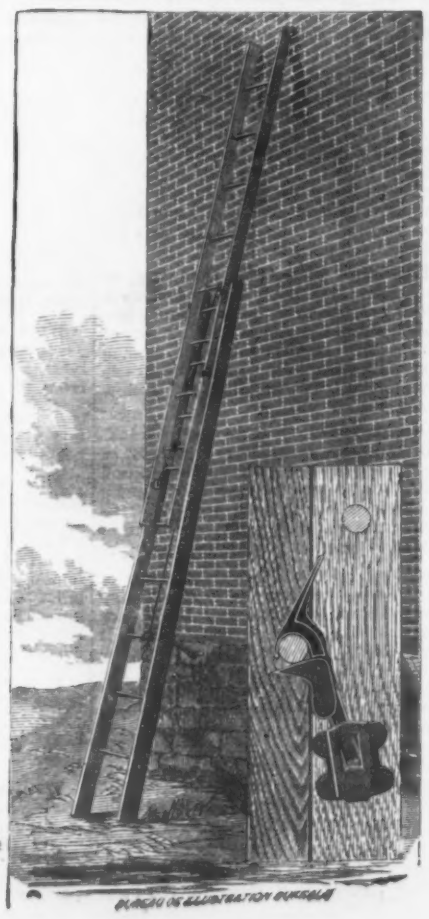


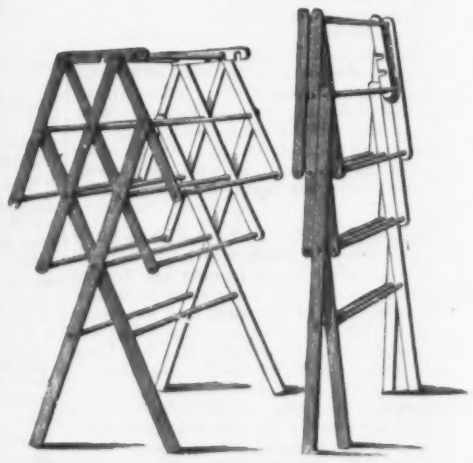
Adams Folding Double Wash Bench.



Lovell's Patent Extension Ladder.
Patented October 22, 1867, and August 4, 1874.



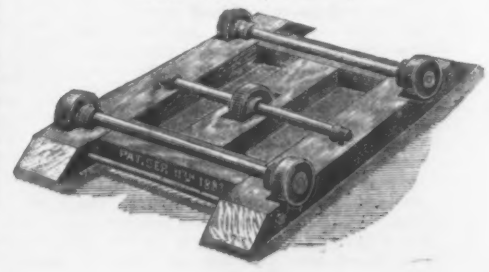
Excelsior Clothes Horse.



Adams Safety Step Ladder.
PATENTED Feb. 3, 1880.

Reversible Clothes Horse.
PATENTED.

The Adams Iron-Wheel Truck.
PATENTED Sept. 11, 1883.



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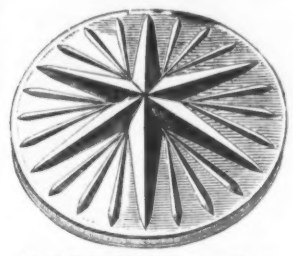

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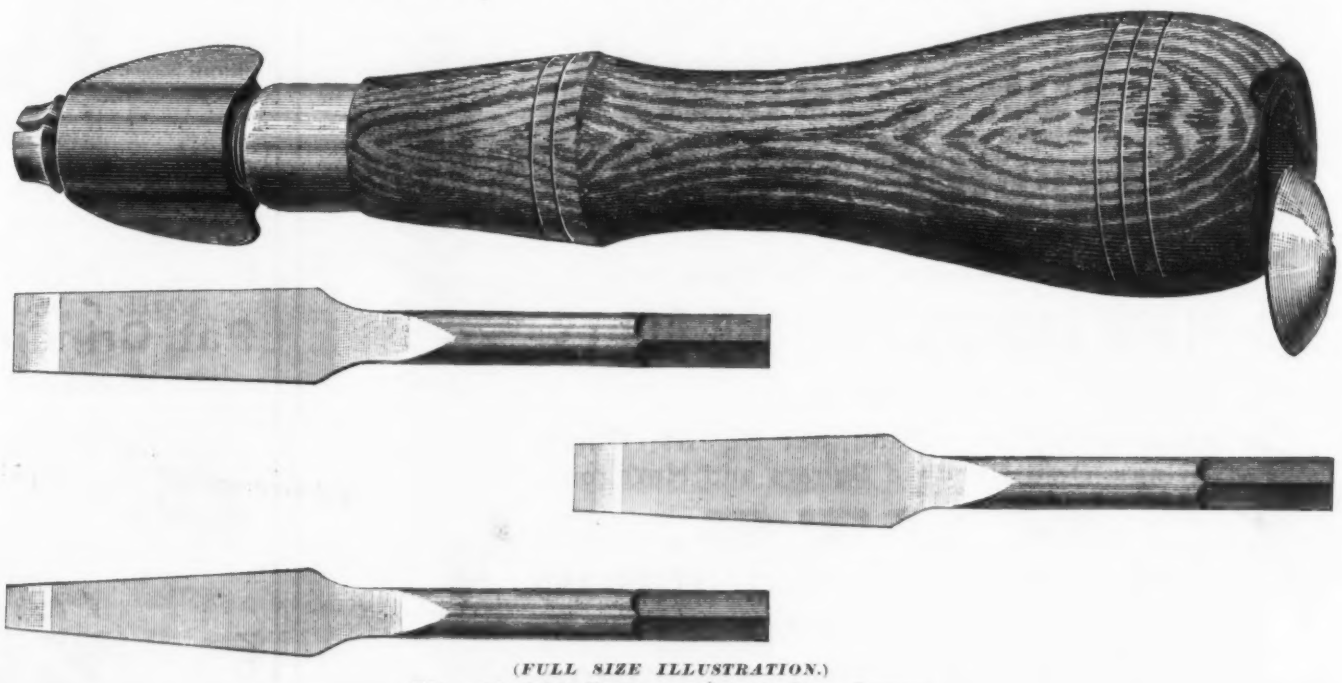

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Yours respectfully, O. D. CHARLES.

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PRAIRIE DU CHIEN, WIS., Sept. 3, 1882.

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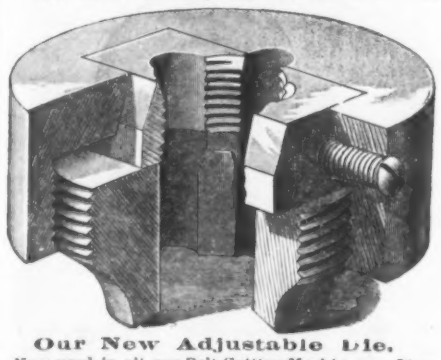

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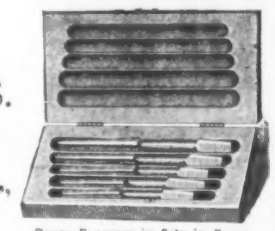

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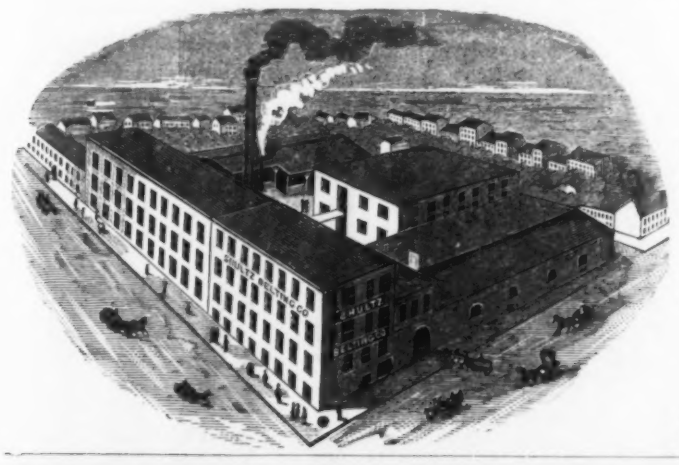

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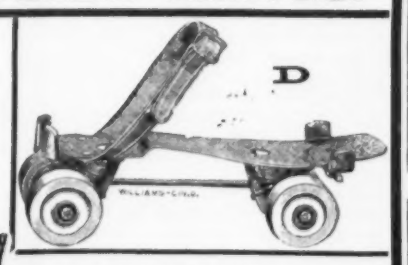

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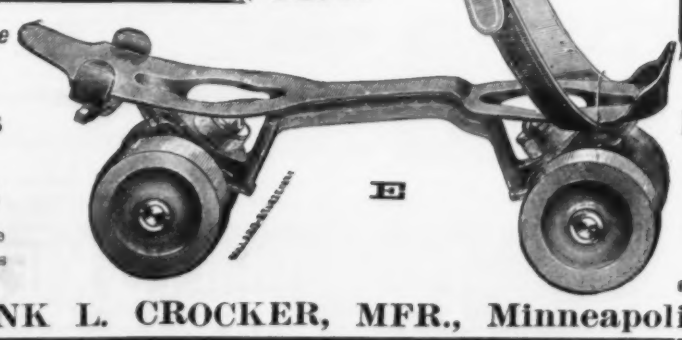

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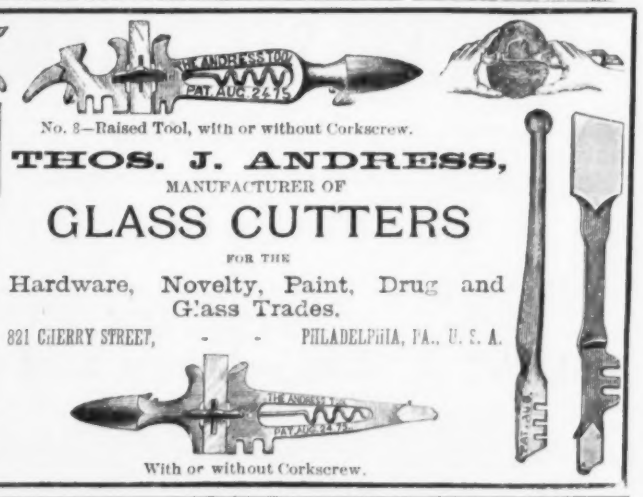

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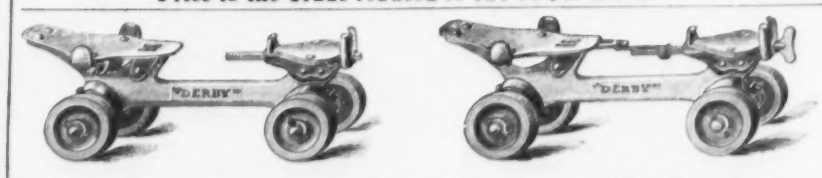

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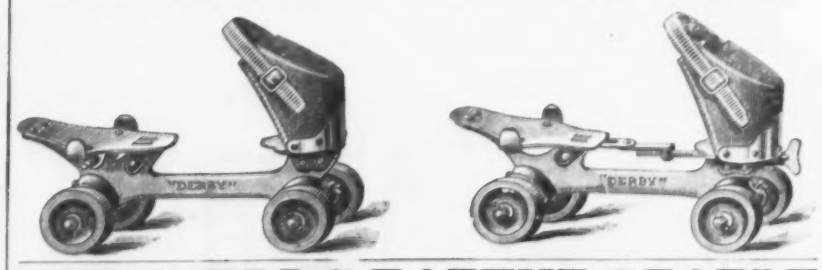

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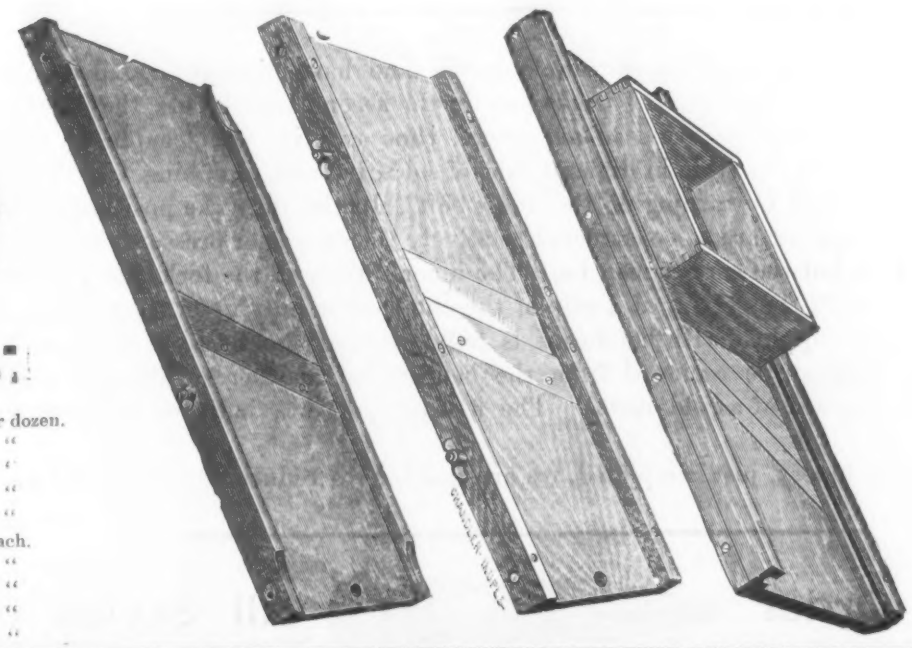

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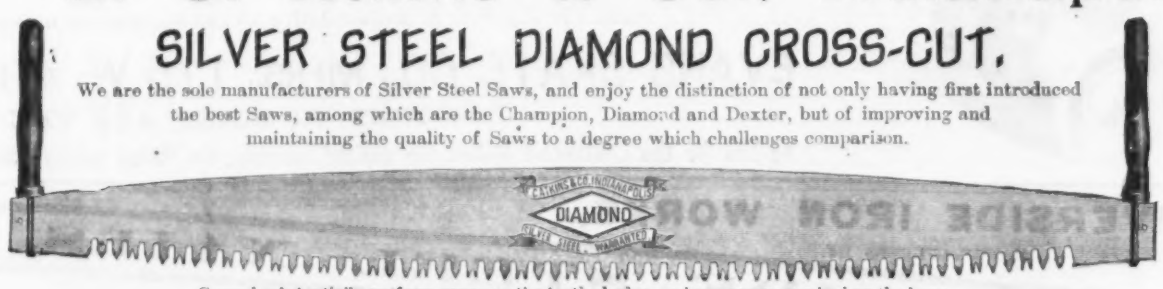

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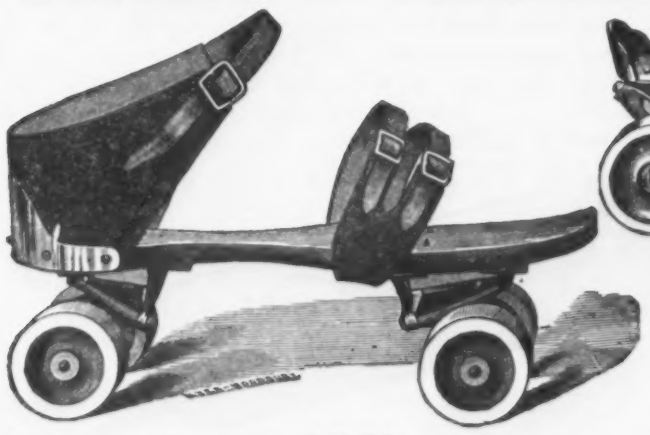

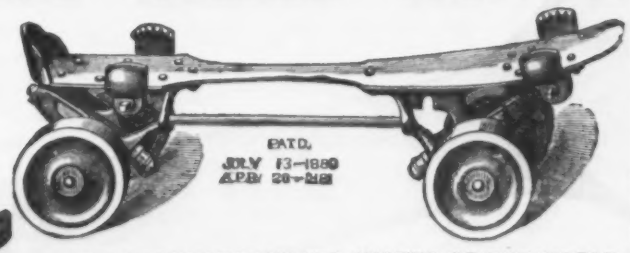

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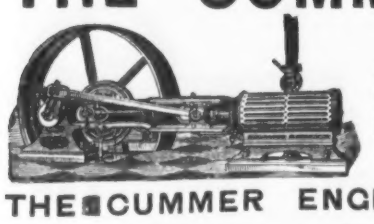

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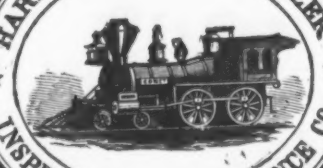

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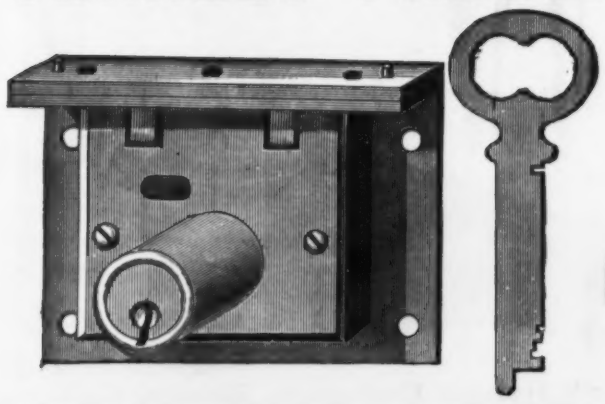

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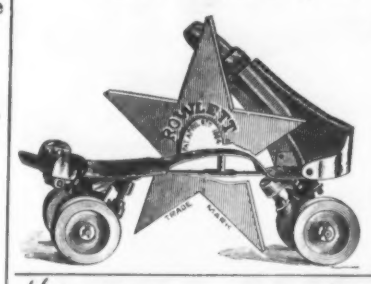

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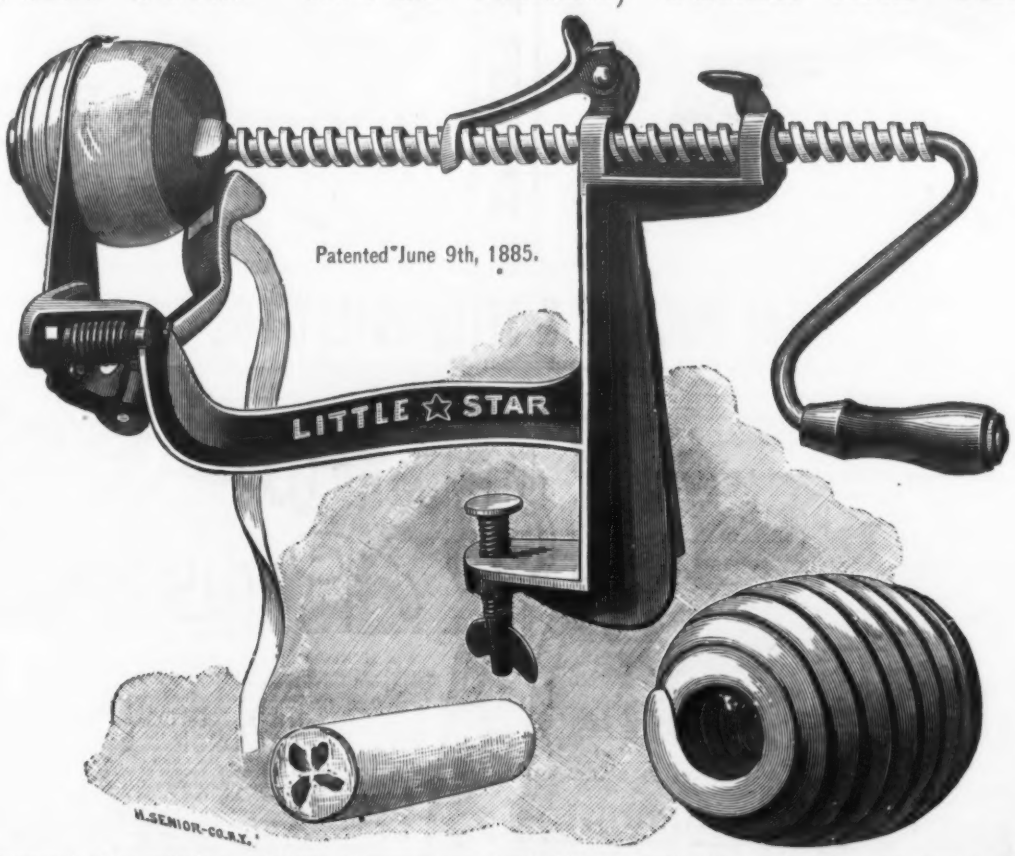

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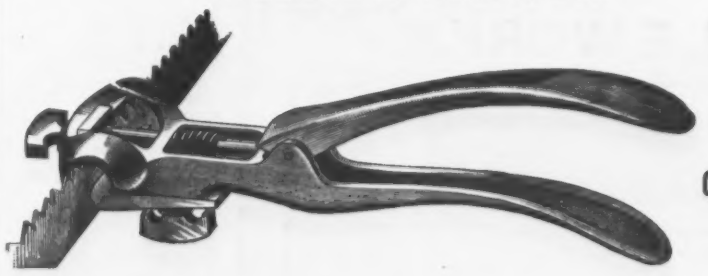

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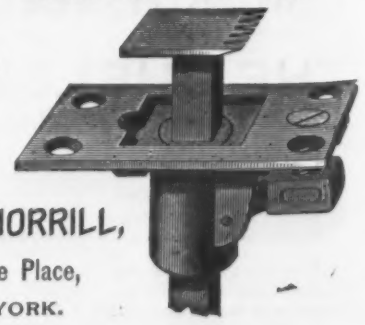

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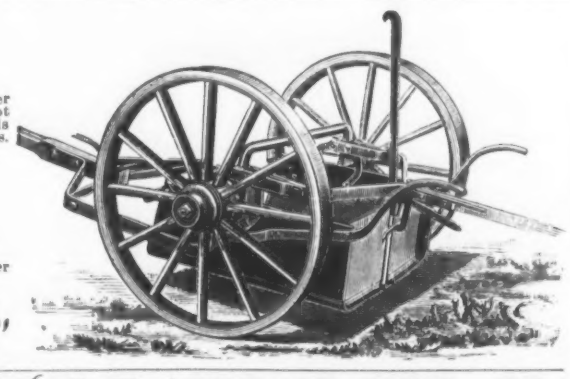

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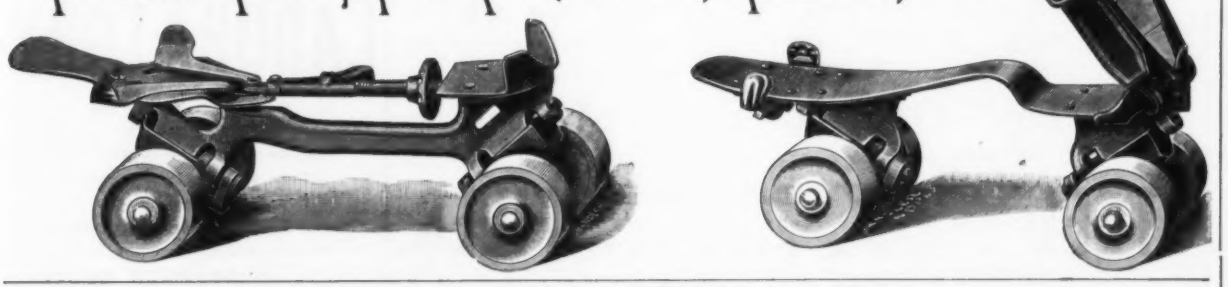

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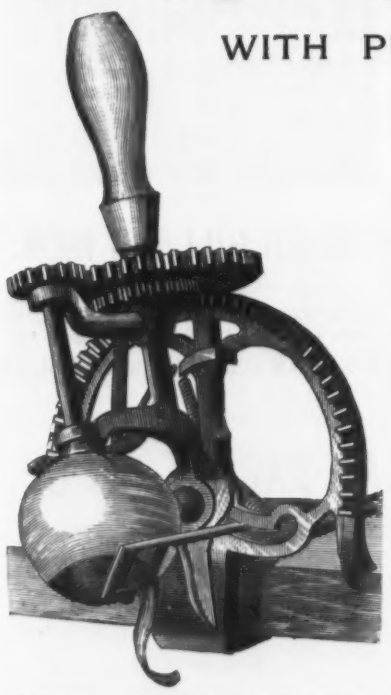

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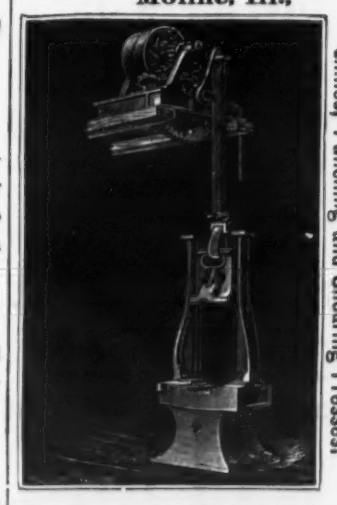

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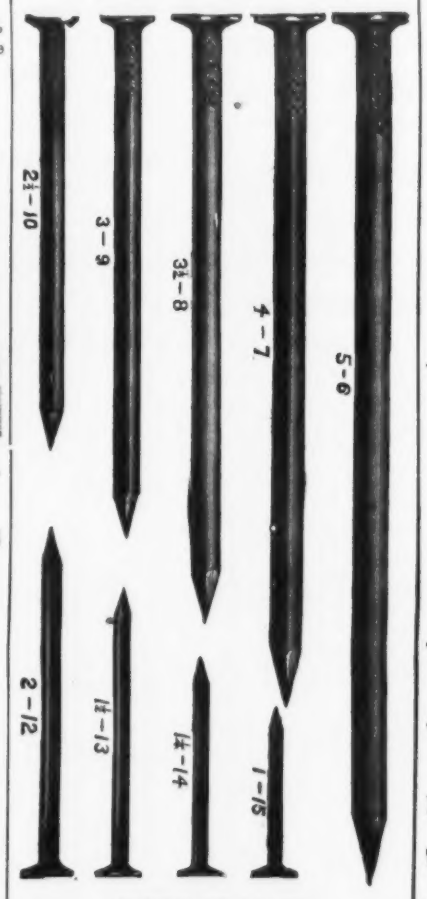

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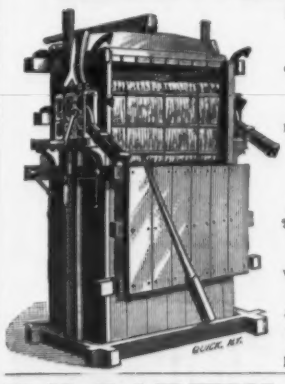

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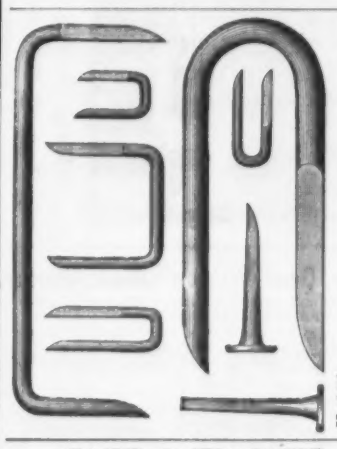

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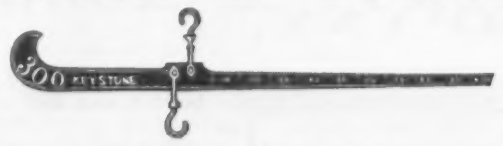

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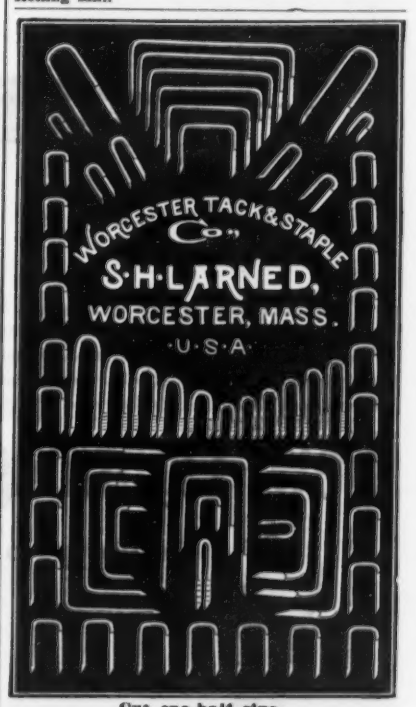

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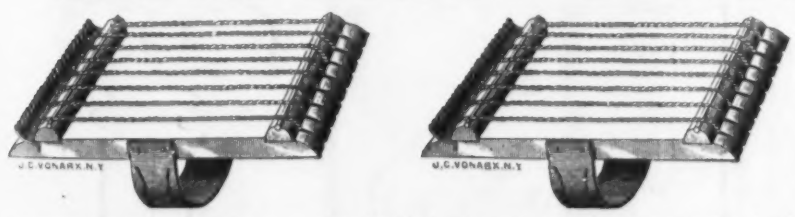

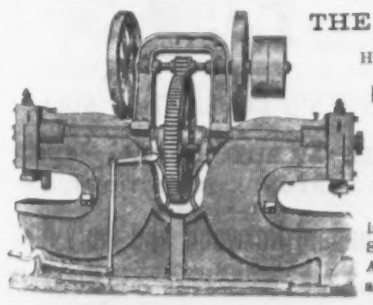

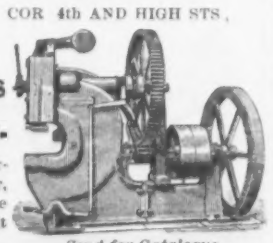

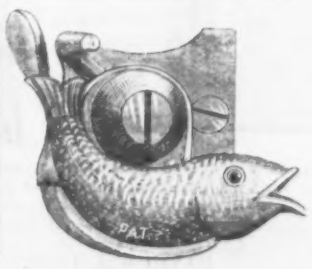

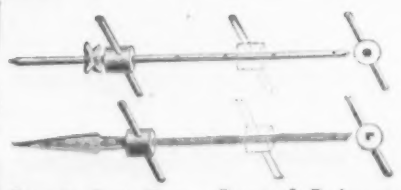

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Peter Wright's, ₱ ℔ ... 9¼ @ 10¢
Trenton ... 9½¢
Eagle Anvils, American, 10¢ ... dis. 20 %

Apple Parers.
Penn Apple Parers ... 5.50 net
White Mountain ... 5.50
Lots of 10 to 25 dozen, special prices.

Axes.
Hunt's Kentucky and Yankee, ₱ doz. net $6.50@7.00
William Mann, ₱ doz. net ... 6.50@7.00
Favorite ₱ doz. net ... 5.50@6.00
Beveled Axes ... add 50¢
Double Bit Axes net ... $12.00

Augers and Auger Bits.—New List January 7, 1880.
Snell's Augers and Bits ... dis 60@60&5 %
New Haven Copper Company ... dis. 70 %
Benjamin Pierce Auger Bits ... dis. 40 %
Jennings' Auger Bits, new list, Jan. 1, 1884..dis.. 25 %
Cook's Auger Bits and Augers ... dis 55 %
Snell's Ship Augers ... dis 20 %
Watrous' Ship Augers ... dis. 15 %
Bonney's Pat. Hol. Augers, list $48 ₱ doz dis 33⅓@40 %
Stearns' Pat. Hol. Augers, list $48 ₱ doz...dis. 20&10 %

Balances.
Light and Common ... dis. 40&10 %

Bells.
Bevin Bros. Mfg. Co. Light Hand Bells ... dis. 80 %
Light Hand Bells ... 80 %
Swiss Pattern Hand Bells ... 60 %
Connell's Door Bells ... dis. 20&10 %
Gt. Western & Kentucky Cow, new list ... dis. 70 %

Boring Machines
Upright, without Augers.....List, $5.50 } dis....50&5 %
Angular, without Augers.....List, 6.75 }

Bolts.—Eastern Carriage Bolts, new list, June 10, 1884 ... dis. 80&5@80&7½ %
Philadelphia Carriage Bolts new list. dis 75&10@80 %
Stanley, Wrought Shutter ... dis. 50, 10, 10&5 %

Braces.—Barber's Improved ... dis. 40@40&5 %
Barber's Old Style ... 50 %
Backus, Polished ... dis. 50&10&10 %
Backus, Nickeled ... dis. 50&10 %
Spofford ... dis. 50&5 %
American Ball ... dis. 55&10 %
Amidon Improved ... dis. 60@60&10&5 %
Amidon Corner Brace ... dis. 40 %

Butts.—Cast Fast Joint, Narrow ... dis.60&10 %
Cast Fast Joint, Broad ... dis.60&10 %
Cast Loose Joint, Narrow ... dis. 70&10 %
Cast Loose Joint, Broad ... dis. 70&10 %
Cast Acorn, Loose Pin ... dis. 70&10 %
Cast Acorn, Japanned ... dis. 70&10 %
Cast Mayer's Loose Joint ... dis. 70&10 %
Wrought Loose Pin.....dis. 60&10&10@60&10&10&5 %
Wrought Table Hinges and Back Flaps..dis. 60&10 @ 60&10&10 %
Wrought Loose Joint..dis. 60&10&10@60&10&10&5 %
Wrought Narrow Fast.......dis. 60&10 @ 60&10&10 %

Blind Butts.
Parker ... dis. 75&2 %
Clark ... dis. 80 %
Shepard ... dis. 80 %
Lull & Porter ... dis. 80&10 %
Huffer's ... dis. 50 %

Casters.—Bed (new list July 1, 1880).dis. 60@60&10 %
Plate ... dis 60@60&10 %

Chains.—German Halter and Coil, list June, 1884 ... dis. 55 @ 55&5 %
Galvanized Pump ... ₱ ℔ 5¾@6¼¢ net
Best Proof Coil Chain—English.

₱ ℔	9¼	6¾	5¾	5¼	5	4¾
	3-16	¼	5-16	⅜	7-16	½

Chisels.—Socket Framing ....dis 75&10@75&10&5 %
Socket Firmer ... dis 75&10@75&10&5 %
Butcher's ... $5.00@$5.25 to £ gold

Coffee Mills.—Box and Side (new list Jan. 1, 1880 ... dis 40 @ 40&10 %
Enterprise ... dis 20&10 %

Cutlery.—Walden Pocket ... new list net
Pennsylvania Knife Co ... new list net
Landers, Frary & Clark, J. Russell & Co., Lamson & Goodnow Mfg. Co. and Meriden Cutlery Co., Manufacturers' prices net.

Door Hangers.—Cronk Barn Door Hangers...No. 4, $12.00; No. 5, $14.00; No. 6, $18..00.dis. 50&5@50&10 %

Drawing Knives.
Hart Mfg. Co.'s ... dis. 75&10@75&10&5 %
Adjustable Handle ... dis 20@20&5 %

Fry Pans.
Tinned ... dis 45 %

₱ doz...	$3.50	4.00	4.50	5.00	5.50	6.50	7.50	9.00	10.00
No. ...	0	1	2	3	4	5	6	7	8

Burnished ... dis. 70@70&5 %

₱ doz...	$3.00	3.75	4.25	4.75	5.25	6.00	7.00	8.00	9.00
No. ...	0	1	2	3	4	5	6	7	8

Files.
Nicholson ... dis 60 %
Disston ... dis 60 %
Butcher ...
Crown and Arrow ... 60&5@60&10 %

Fluting Machines.
Eagle—3½ in. roll ... each, $2.15 } dis 35 %
Eagle—5½ in. roll ... each, 2.85 }
Crown—4½ in. roll ... each, 3.50 }
Crown—6 in. roll ... each, 4.00 } dis 35 %
Crown—8 in. roll ... each, 6.50 }
Geneva Fluter ... dis 25 %
Favorite com. Fluter and Sad Iron..₱ doz., $10.50 net

Hammers.
Yerkes & Plumb's, new list ... dis 40&10 %
Maydole Hammers ... dis 15&10 %
Howell A. E. Nail Hammers ... ₱ doz., net $3.75

Handles.
Disston Loop Handles Cross-Cut ... 33¢ pair net
Boynton Loop Handles Cross-Cut ... 33¢ pair net

Hatchets.
Yerkes & Plumb, new list ... dis 40&10&5 %
Hunt ... dis 40 %

Hay and Straw Knives.
Lightning ... ₱ doz.. $18.00 dis. 10@10&5 %
Electric ... ₱ doz.. 18.00 dis. 30 %
Wadsworth ... ₱ doz., net 35&5 %
Walton Straw Knives ... ₱ doz., net 17.00

Hinges.
Strap and T ... dis 65&10 %

Horse Nails. Nos.	5	6	7	8	9	10	
Globe	26	23	21	20	19	18	dis 10&5&5 %
Ausable	30	27	25	24	23	22	dis 25&10 %
Pol'ed and P't'd & Blued & P't'd.	31	28	26	25	24	23	dis 25&10 %
Clinton		23	21	20	19	18	dis 25&10 %
" Pol'ed & P't'd.		24	22	21	20	19	dis 25&10 %
Saranac	26	23	21	20	19	18	dis 20 %

Locks and Knobs.
Branford Locks ... 66⅔&2 %
Gaylord Cabinet ... dis 40&2 %
Parker's Cabinet ... dis 40&2 %
American Padlocks ... dis 66⅔&2 %
Scandinavian Padlocks ... dis 50 %

₱ doz..	$5.00	5.50	6.50	7.50	8.50	10.00	12.50	dis 60 %
No.....	57	58	59	60	61	62	63	
₱ doz		$18.00		26.00		33.00		dis 60 %
No.		64		65		66		

Lanterns.
Buckeye ... large list, net; small list, net
Tubular ... No. 0, $7.50; No. 1, $9.00 ₱ doz. net
Guards 40¢ extra.

Lawn Mowers.—Pennsylvania } 40&5 % 3 % cash 30 days.
Philadelphia
Excelsior
Continental
Quaker City

Lawn and Garden Pumps.
Holland Patent ... list, $5.00, dis 10 %

Mattocks.
Long and Short Cutter ... new list, 60&10 %
Pennsylvania Pattern ... dis 60& 10 %

Molasses Gates.
Enterprise Mfg. Co.'s Measuring Faucets.dis. 20&10 %
Stebbins' Gates ... dis. 80 %
Lincoln's Gates ... dis. 70&10 %
Landers, Frary & Clark's Petroleum ... dis 40&5 %
Brass Liquor Cocks new list Jan. 1, 1880..dis.. 65&5 %
Cork Lined Cocks ... dis. 70 %

Meat Cutters.
Dixon's ... dis. 40 %
Woodruff ... dis. 40 %
Stowe ... dis. 40 %
Hale's ... new list. dis. 60, 10&2 cash
American ... dis 35 %
Stuffers ... dis. 40 %
Enterprise Stuffers ... dis. 20&10 %

Planes.—Sandusky Tool Co ... dis. 20&2 %
Ogonts ... dis. 25&2 %
Ohio and Auburn ... dis. 20&2 %
Bailey (S. R. & L. Co.) ... dis. 20&10 %

Plane Irons.—Ohio Tool Co ... dis. 20&10 %
Butcher's ... $5.00 @ 5.25 to £

Plumbs and Levels.
Stanley's Adjustable ... dis. 70&10 %
Stanley's Non-Adjustable ... dis. 70&10 %

Picks.—New list ... 60&5@60&10 %

Razor Strops.
Lamont Combination ... ₱ doz. $4.00
Lamont Combination ... 1 gross lots $42.00
Imitation Emerson ... ₱ doz. $2.00
Lamoille, 1 doz. lots ... $3.50 net
" 1 gro. " ... $38.00 net

Rules.—Stanley Boxwood ... dis. 80@10 %
Stanley Ivory ... dis. 55 @55&10 %

Steelyards.—Hart's Pattern dis ... 40&10@50 %

Per doz.....	$14.50	17.75	21.00	26.50	31.00	35.50
Lbs	50	100	150	200	250	300

American Pattern ... dis. 40&10@50 %

Per doz......	$8.00	10.25	13.75	15.60	16.75	19.50
Lbs	50	100	150	200	250	300

Scale Beams ... 60@60&5 %
Custers ... 25 %

Squares.
Steel and Iron.dis. 60& 10 %; full casesdis. 60&10&5%
Try Squares, Stanley ... dis 60&10 %
Disston's Try Squares ... dis 45&10 %

Scythes.—Golden Clipper, Damascus Blade, Boxed and Sharpened ... ₱ doz $9.00 } 40
Clipper No. 10, Bronzed Blade, Boxed and Sharpened ... ₱ doz $8.50
Clipper No. 5, Painted Red, Boxed and Sharpened ... ₱ doz $8.00

Saws.—Disston's Hand, Panel and Rip ... dis 20&10 %
Disston's Circular ... dis 45&10 %
Cross-Cut No. 2, Plain Tooth ... dis 45&10 %
Cross-Cut Patent Tooth ... dis 45&10 %
Cross-Cut Champion Tooth ... dis 45&10 %

Shovels and Spades.
Oliver Ames & Sons, new list ... dis 20 %
Griffiths ... dis 50&10@60 %
Rowland ... dis 60&5@60&10 %

Sad Irons.—4 to 10 ℔ ... ₱ ℔ 2¼@2½¢
Mrs. Potts' Patent ... dis 40 %

Stone.
Washita Extra ... ₱ ℔ 16¢
Washita No. 1 ... ₱ ℔ 13½¢
Washita No. 2 ... ₱ ℔ 10¢
Washita Slips ... ₱ ℔ 26¢
Washita Axe ... ₱ ℔ 13¢ net
Hindostan Oil Stone No. 1 ... ₱ ℔ 6¢, dis. 40 %
Hindostan Axe Stone ... ₱ ℔ 8¢. dis. 40 %
Hindostan Slips ... ₱ ℔ 10¢. dis. 40 %

Screws.—Parker List.
Flat Head Iron ... dis 85 %
Flat Head Brass ... dis 85 %
Round Head Brass ... dis 83⅓ %
Round Head Iron ... dis 85%

Spoons.
Plated ... dis 50&5&5 %
German Silver ... dis 40&10@50 %
Britannia, Boardman's ... dis 60 %
Britannia, Parker's ... dis 60&10 %
Tinned ... dis 10 %

Springs.—Torrey ... dis 50 %
Gem No. 3 small Japanned ... $2.00 } dis 50&10 %
Gem No. 2 medium Japanned ... 2.75 }
Coil No. 10 ₱ gross net ... $5.50@6.00
Other Standard Springs ... dis 50&10@60 %
Warner Door Springs, ₱ doz. $2.50 ... dis 40&10 %
Standard Spring Hinges—
Single No. 0, ₱ doz. net ... $1.10@1.25
Single No. 1, ₱ doz. net ... 1.25@1.50
Other Standard Spring Hinges ... dis 25&10@40 %

Stocks and Dies ... dis 10 and 5 %

Stove Polish.—Gem ... ₱ gross, $4.50, dis 5 %
Dixon ... 6.00, dis 10 %
Fire Fly ... $3.00 gross. net

Tacks ... Combination discounts
Shoe Nails—4-8, and over, 5½¢ } 10 %
Shoe Nails—3½-8, and under 7¢ }
Double Pointed Tacks ... dis 75&10&5 %

Traps.
Genuine Oneida—Newhouse ... dis 35 %
Im. Oneida—Newhouse list. First qual.dis 60&10&10 %

Vises.—Solid Box. Trenton new list..dis 50&10@60 %

Wrenches.—Agricultural ... dis 75&10&5 %
Coes' Genuine ... dis 60&3 %
Coes' Mechanics' ... dis 60&10&3 %
Coes' Mechanics,' Mall. Bar ... dis 80 @ 80&5 %

Wire.
Bright or Annealed, No. 0 to 18 ... dis 70@70&5 %
Bright or Annealed, No. 19 to 26 ... dis 70@70&5 %
Bright or Annealed, No. 27 to 36 ... dis 75@75&5 %
Coppered, 0 to 18 ... dis 65&5 %
Tinned Broom Wire ... dis 65 %
Galvanized Barb Wire ... 5½¢
Painted Barb Wire ... 4½¢
Galvanized, No. 7 to 18...Market List, dis ... 60 %

Wringers.
Peerless No. 2½ ... $30.00
Peerless No. 2 ... 33.00
Universal No. 2½ ... 30.00
Universal No. 2 ... 33.00
Novelty No. 2, for common tubs ... 30.00
Novelty No. 3, " " ... 34.50
Excelsior E, for stationary tubs ... 39.00
Excelsior F " " ... 43.50
} dozen lots $3.00 per dozen.

PITTSBURGH.

Merchant Iron.

TERMS.—Note or acceptance at 60 days, with current rate of exchange on New York, or a discount of 2 ₱ cent. for cash, if remitted within 10 days from date of invoice.

For fluctuations and discounts on card rates see weekly Pittsburgh Trade Report. The following are card rates.

Flat Bar.
1¼ to 4 by ⅜ to 1 inch ... 2.0¢
4½ to 6 by ⅜ to 1 " ... 2.1¢
1¼ to 6 by 1⅛ to 1¼ " ... 2.4¢
1¼ and 1⅛ by ⅜ to ¾ " ... 2.1¢
1 and 1⅛ by ⅜ to ¾ " ... 2.2¢
⅝, ¾ and ⅞ by ⅜ to ⅝ inch ... 2.4¢

Rounds and Squares.
1 to 1⅞ ... 2.0¢ | ⅜ to 9-16 ... 2.2¢
2 to 2⅝ ... 2.2¢ | ½ to 7-16 ... 2.4¢
2¾ to 3¼ ... 2.5¢ | ⅜ ... 2.6¢
3⅜ to 4 ... 3.0¢ | 5-16 ... 2.8¢
4⅛ to 5 ... 3.5¢ | ¼ ... 3.0¢
¾ to ⅞ ... 2.1¢ | 3-16 ... 5.0¢

Oval Iron.
⅞ to 1½ ... 2.4¢ | ½ ... 2.8¢
⅜ to ⅝ ... 2.6¢ | ⅜ ... 3.2¢

Half Oval and Half Round.
⅞ to 1¼ inch ... 2.7¢ | ½ inch ... 3.5¢
⅝ to ⅝ " ... 3.2¢ | ⅜ " ... 5.0¢

Horse Shoe.
⅝ to 1⅛ by 5-16 to ⅞ inch ... 3.0¢

Wagon Box Iron.
¾ inch, Nos. 13 and 14 ... 3.2¢
" " 11 and 12 ... 3.0¢
⅝ " 13 and 14 ... 3.5¢
⅝ " 11 and 12 ... 3.3¢
½ " 13 and 14 ... 3.9¢
½ " 11 and 12 ... 3.6¢

Heavy Bands.
3¼ to 6 by ¼ and 5-16 inch ... 2.2¢
1¾ to 3¼ by ¼ and 5-16 " ... 2.2¢
1 to 1⅝ by ¼ and 5-16 ... 2.3¢
¾ to ⅞ by ¼ and 5-16 ... 2.5¢
⅝ and ⅝ by ¼ and 5 16 ... 3.0¢

Light Bands.
1½ to 6 by ⅛ to 3-16 ... 2.5¢
1½ to 6 by Nos. 11 and 12 ... 2.6¢
1 to 1⅜ by ⅛ to 3-16 ... 2.6¢
1 to 1⅜ by Nos. 11 and 12 ... 2.7¢
⅞ and 13-16 by ⅛ to 3-16 ... 2.9¢
⅞ and 13-16 by Nos. 11 and 12 ... 3.0¢
¾ and 11-16 by ⅛ to 3-16 ... 3.2¢
¾ and 11-16 by Nos. 11 and 12 ... 3.3¢
⅝ and 9-16 by ⅛ to 3-16 ... 3.5¢
⅝ and 9-16 by Nos. 11 and 12 ... 3.6¢
½ inch by ⅛ and 3-16 ... 3.8¢
½ inch by Nos. 11 and 12 ... 3.9¢

Hoop Iron.
1¼ to 4, Nos. 13, 14 and 15 ... 2.8¢
1¼ to 2, Nos. 16, 17 and 18 ... 2.9¢
1¼ to 2, No. 19 ... 3.0¢
1¼ to 2, No. 20 ... 3.1¢
1¼ to 2, No. 21 ... 3.2¢
1¼ to 2, No. 22 ... 3.3¢
15-16, 1, and 1⅛, Nos. 13, 14 and 15 ... 3.0¢
15-16, 1, and 1⅛, Nos. 16, 17 and 18 ... 3.1¢
15-16, 1, and 1⅛, Nos. 19 and 20 ... 3.2¢
15-16, 1, and 1⅛, No. 21 ... 3.3¢
15-16, 1, and 1⅛, No. 22 ... 3.4¢
⅞, Nos. 13, 14 and 15 ... 3.2¢
⅞, Nos. 16, 17 and 18 ... 3.3¢
⅞, Nos. 19 and 20 ... 3.4¢
⅞, No. 21 ... 3.5¢
⅞, No. 22 ... 3.6¢
13-16, Nos. 13, 14 and 15 ... 3.4¢
13-16, Nos. 16, 17 and 18 ... 3.5¢
13-16, Nos. 19 and 20 ... 3.6¢
13-16, No. 21 ... 3.7¢
13-16, No. 22 ... 3.8¢
¾, Nos. 13, 14 and 15 ... 3.5¢
¾, Nos. 16, 17 and 18 ... 3.6¢
¾, Nos. 19 and 20 ... 3.7¢
¾, No. 21 ... 3.8¢
¾, No. 22 ... 3.9¢
11-16, Nos. 13, 14 and 15 ... 3.7¢
11-16, Nos. 16, 17 and 18 ... 3.8¢
11-16, Nos. 19 and 20 ... 3.9¢
11-16, No. 21 ... 4.0¢
11-16, No. 22 ... 4.1¢
⅝, Nos. 13, 14 and 15 ... 3.9¢
⅝, Nos. 16, 17 and 18 ... 4.0¢
⅝, Nos. 19 and 20 ... 4.1¢
⅝, No. 21 ... 4.2¢
⅝, No. 22 ... 4.3¢
⅝, No. 23 ... 4.4¢
9-16, Nos. 13, 14 and 15 ... 4.1¢
9-16, Nos. 16, 17 and 18 ... 4.2¢
9-16, Nos. 19 and 20 ... 4.3¢
9-16, No. 21 ... 4.4¢
9-16, No. 22 ... 4.5¢
9-16, No. 23 ... 4.6¢
½ inch, Nos. 13, 14 and 15 ... 4.3¢
½ inch, Nos. 16, 17 and 18 ... 4.4¢
½ inch, Nos. 19 and 20 ... 4.6¢
½ inch, No. 21 ... 4.7¢
½ inch, No. 22 ... 4.8¢
½ inch, No. 23 ... 4.9¢

The prices under Hoop Iron do not apply to Cotton Ties.

1-10¢ ₱ ℔ extra will be charged for each gauge lighter than the lightest indicated.

1-10¢ ₱ ℔ extra will be charged for cutting Hoops to specified lengths.

Barrel Hoops.
1¼ to 2 in., cut to length.
9 to 11 ℔, ₱ set of 6 hoops ... 3.0¢
8 ℔ and less than 9 ℔, ₱ set of 6 hoops ... 3.1¢
Less than — ℔, ₱ set of 6 hoops ... 3.2¢

Extras for Cutting to Length all Preceding Iron.
All Iron, including Tire ... 1.10¢

Tank Iron.
No. 9 and heavier ... 2.8¢
Plow Slabs ... 3.0¢
Plow Wings ... 3.3¢

Sheet Iron.

	Common.	Charcoal.	Juniata.
Nos. 10 to 14	3.0¢	4.5¢	6.0¢
Nos. 15 to 17	3.3¢	4.8¢	6.3¢
Nos. 18 to 21	3.6¢	5.1¢	6.6¢
Nos. 22 to 24	3.8¢	5.3¢	6.8¢
Nos. 25 and 26	4.0¢	5.5¢	7.0¢
No. 27	4.2¢	5.7¢	7.2¢
No. 28	4.6¢	6.1¢	7.6¢

All sheets No. 18 and lighter, over 30 inches wide, not less than 2.10¢ extra.

Wood's Patent Planished Sheet.
1st quality (A) ... 10¢ | 2d quality (B) ... 9¢

Galvanized C. H. B.—(Charcoal Hammered Blooms.)
Nos. 14 to 20 ... 12¢ | No. 27 ... 15¢
Nos. 21 to 24 ... 13¢ | No. 28 ... 16¢
Nos. 25 and 26 ... 14¢ | No. 29 ... 18¢
60 @ 62½ % discount.

Coal Screen Iron.
1⅜ by ⅝ by 5-16 ... 2.5¢ | 1 by ⅝ by 5-16 ... 3.0¢

Angle Iron.
2¼, 3, 3½ and 4 inch ... 2.8¢
1½, 1¾, 2 and 2¼ " ... 2.8¢
1¼ inch ... 2.9¢
1 " ... 3.1¢
1⅛ by 1 inch, for Plow Handles ... 3.3¢
1⅛ by ⅞ " " ... 3.3¢
1⅜ by ¾ " " ... 3.4¢

T Rail.
8 lbs. to the yard ... 2.4¢ | 20 lbs. to the yard ... 2.3¢
12 " " ... 2.3¢ | 28 " " ... 2.3¢
16 " " ... 2.3¢ | 30 " " ... 2.3¢

Splice Joints for 12, 16 and 20℔. Rail, 30¢ each; 28 and 30-℔. Rail, 40¢ each; 40-℔., 50¢ each.
3¼ by ⅜ and ½ Spikes for 20 and 28-℔. Rail ... 3½¢
2½ and 3 by ⅜ " " 12 and 16-℔. " ... 3.5¢
2⅛ by 5-16 " " 8-℔. Rail ... 4.0¢

Flat Rails.—Punched and Countersunk.
1¼ to 2 by ⅛ to ⅜ inch ... 2.5¢
1⅛ by ⅜ and 7-16 inch ... 2.7¢
1⅛ by ⅜, 7-16 and ½ inch ... 3.0¢

Juniata Nail Rods ... 6.0¢
Norway Nail Rods ... 7.5¢
Guard Iron, ¼x⅜x⅝ and ⅜x⅝x⅝ ... 3.5¢
Guard Iron ⅜x⅝x9-16 and ½x⅝x⅝ ... 3.7¢
Drag Bars ... 2.8¢
Dropper Bars ... 3.3¢
Cylinder and Landside Iron ... 2.7¢
Plow Beam Iron ... 2.5¢

Nails.
See Pittsburgh Trade Report.

Best Quality Refined Cast Steel.
Square, Flat, Octagon and Round.
⅝ to 2 inches, inclusive ... 8½¢
1-16 and 2¼ to 3 inches ... 9½¢
¼ and 3¼ to 4 " ... 10½¢
7-32 and 4¼ to 5 " ... 11½¢
3-16 and 5¼ to 6 " ... 14¢
5-32 inch ... 18¢
⅛ " ... 25¢
Oil Well Steel Forgings ... 18¢

Machinery Steel.

	Crucible	Bessemer & Open Hearth.
Ordinary Sizes, ⅜ to 2 inch Round	4½¢	3¢
5-16 and 2⅛ to 3 inches	5½¢	4¢
¼ and 3⅛ to 6 "	6½¢	5¢
7-32 inch	7½¢	6¢
3-16 "	9¢	8¢

Square, Flat and Octagon, ½¢ extra throughout the list.
Cut to specified lengths, ½¢ extra.

Hammer Cast Steel.
Crucible Cast Steel ... 5¢
Open Hearth Cast Steel ... 4¢

Sheet Steel.—Crucible.

	Best.	2d Qual.	3d Qual.	Bessemer & Open Hearth.
To 21 gauge	9½¢	8½¢	6½¢	5¢

1¢ extra for each additional gauge.
Cut to multiples or specified lengths, ½¢ extra.

Miscellaneous Cast Steel.
Auger and Auger Bit ... 3¢
Axle Steel for carriages and wagons ... 3¢
Frog Points and Plates ... 5½¢
Frog Side Bars ... 5¢
Pick, plain (hammered) ... 5¢
Pick and Mattock, beveled (rolled ... 3¢
Skate Steel ... 4½¢
Table Cutlery, plain ... 3½¢
Table Cutlery, beveled ... 4¢
Pike and Cant Hook ... 7¢
Coal and Granite Wedge ... 7¢
Roller ... 5½¢
Spindle, subject to Machinery classification ... 5½¢
Trap Spring Steel ... 6¢
Forged Crank Pins and Lathe Spindles ... 7½¢
Piston Rods, plain ... 4¢
Piston Rods, forged to shapes ... 7½¢
Slide Bars, plain ... 5¢
Slide Bars, forged to shapes ... 7½¢

Open Hearth or Bessemer
Boiler, Fire-Box and Flue Sheets, not less than 3-16 thick ... 4¢
Boiler, Fire-Box and Flue Sheets, not less than ⅛ thick ... 5¢
Circulars and semi-circulars, when ordered separately ... 6¢
Smoke Stack, to shape ... 5¢
Locomotive Tank Steel ... 4¢

File Cast Steel.
Square, Round, Half Round and Flat Bastard, 8 inch and over ...
Mill Saw, 8-inch and over ... 5¢
Taper, 3½-inch and over ... 6¢
Horse and Shoe Rasp ... 5¢

Spring Cast Steel ... 4½¢
Spiral, Taper, cut to lengths ... 5½¢

Tire Cast Steel.
1x¼ and over ... 6½¢
1x3-16, ⅞x3-16 and ¼ ... 7¢
1 and 13-16x¼ and 5-32, ¾x3-16 and 5-32 ... 9¢
¾ and ⅝x¼ and 3-32 and 12 g ... 10¢
Solid Safe Cast Steel ... 4¢
Three and Five Ply Cast Steel ... 5¢

Agricultural Implement Cast Steel.
Fork and Rake, Crucible ... 4½¢
Horse Rake Steel, cut to lengths, Crucible ... 5¢
Hoe, Crucible ... 5¢
Corn Stalk Cutter, beveled ... 4½¢
Beveled Hoe and Shovel Steel in Bars ... 4½¢
Crucible Plow Steel in Slabs ... 4½¢

Bessemer and Open Hearth.
Spring ... 2½¢
Spring spiral and taper, cut to lengths ... 3½¢
Tire, 2-16 thick and above ... 2½¢
Toe Calk ... 2½¢
Plow ... 2½¢
Axle Billets ... 2 ¢
Sleigh Shoe ... 2½¢
Cutter Shoe, cut to lengths and tapered ... 3¢
Scythe Back Steel ... 3½¢
Grain Drill Bars ... 2½¢
Grain Drill Points ... 3½¢
Rolling Coulter Blanks, cut and punched ... 6¢
Thrasher Steel ... 2½¢
Thrasher Teeth ... 3½¢
Rolled Hammer Billets ... 2½¢

Terms.—Four months; 3 per cent. discount for cash, if remitted within 30 days.

Rolls and Castings.
Furnace Floor and Straightening Plates ... 1½¢
Housings and Castings not otherwise specified ... 2½¢
Guide Plates ... 2¾¢
Spindles and Coupling Boxes ... 1¾¢
Sand Rolls and Pinions, large size ... 2 ¢
Sand Rolls and Pinions, small size ... 2½¢
Pipe Mill Castings ... 3 ¢
Rolling Mill Castings under 50 ℔ ... 2 ¢
Spur and Bevel Wheels, large ... 3½¢
Spur and Bevel Wheels, small ... 4 ¢
Pulleys up to 30 inches ... 4 ¢
Pulleys over 30 inches ... 3½¢
Engine Castings, light ... 3½¢
Engine Castings, heavy ... 2¾¢

White and Red Lead.
Strictly Pure White Lead in Oil, in Kegs 6¢ ₱ ℔; in 25 ℔ Cans, packed in 100 ℔ cases, ½¢, and 12½ ℔ cans' 1¢ over keg price; in 1 to 5 ℔ Cans, assorted, in 100 ℔ cases, 2½¢ over keg price.
Strictly Pure Dry White Lead in kegs ... 6¢ ₱ ℔
Strictly Pure Red Lead *extra bright and fine*, in kegs.6¢
Strictly Pure Litharge, *powdered, extra fine*, in kegs.6¢
Orange Mineral, *True*, in barrels ... 7½¢
" " " in 100 ℔ kegs ... 7¾¢

A discount of 3% will be deducted from Invoice on purchase of 500 ℔ and upward.

Terms: Note or acceptance at 60 days or less, 2½ % for cash if paid within 15 days from date of invoice.
Freight equalized with all points where White Lead is made.

Window Glass.
Discount, 75% *Single Strength* 75 & 10% *Double.* Prices current, ₱ box of 50 feet.

United Inches	Sizes.	AA.	A.	B.	C.
	Single Strength.				
25	6 x 8 to 10 x 15	$8.75	$8.00	$7.50	$7.00
39	11 x 14 to 15 x 24	9.25	8.50	8.00	7.25
48	16 x 24 to 20 x 28	10.75	9.75	8.75	7.75
54	15 x 34 to 24 x 30	12.25	10.75	9.00	....
60	26 x 28 to 24 x 36	13.00	11.50	9.75	....
70	26 x 36 to 26 x 44	14.50	13.25	10.75	....
80	26 x 46 to 30 x 50	15.00	14.00	11.25	....
84	30 x 52 to 30 x 54	....	....	....	....
90	30 x 56 to 34 x 56	....	....	....	....
94	34 x 58 to 34 x 60	....	....	....	....
100	36 x 60 to 40 x 60	....	....	....	....
	Double Strength.				
25	6 x 8 to 10 x 15	13.25	12.25	11.25	10.50
39	11 x 14 to 15 x 24	14.50	13.25	12.50	11.25
48	16 x 24 to 20 x 28	17.25	15.75	14.00	....
54	15 x 34 to 24 x 30	19.75	17.25	14.50	....
60	26 x 28 to 24 x 36	21.00	18.50	15.75	....
70	26 x 36 to 26 x 44	23.25	21.25	17.25	....
80	26 x 46 to 30 x 50	24.00	22.50	18.00	....
84	30 x 52 to 30 x 54	25.75	23.25	19.25	....
90	30 x 56 to 34 x 56	27.75	25.00	21.75	....
94	35 x 58 to 34 x 60	29.25	27.75	24.00	....
	36 x 60 to 40 x 60	33.25	30.00	27.75	....

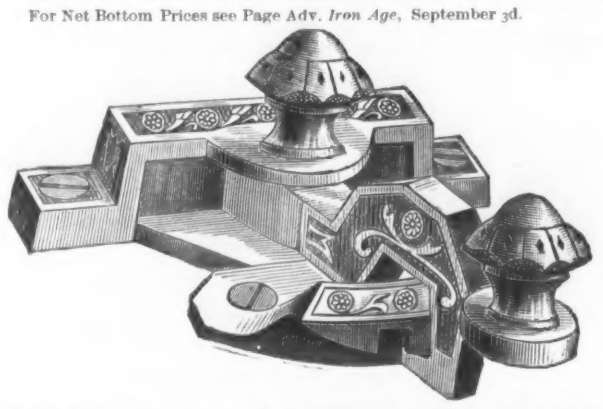
Sizes above — $10 ₱ box extra for every 5 inches.

An additional 10 per cent. will be charged for all glass more than 40 inches wide. All sizes above 52 inches in length, and not making more than 81 united inches, will be charged in the 84 united inches bracket.

Hubbard, Bakewell & Co.'s Goods.
Axes, Single Bit, Lippincott ... per doz., $6.50
Axes, Single Bit, James & Co ... per doz., 5.50
Axes, Double Bit, Lippincott ... per doz., $12.00
Axes, Double Bit, James & Co ... per doz., 10.00
Drain Tools, list ... dis 20&7½ %
Hoes, Planters' ... dis 60 %
Hoes, Scovill Pattern ... dis 60 %
Hoes, Handled, Square Eye, German ... dis 60 %
Handles, Cross Cut ... per doz., $2.25
Handles, Shovel, Bent, Bored, Riveted..per doz., 2.00
Saws, Circular ... dis 50 %
Saws, Long ... dis 45 %
Saws, Cross-Cut, H. B. & Co., Champion, per foot net ... $0.27
Saws, Cross-Cut, Lippincott, Champion, per foot net ... $0.25
Shovels, list ... dis 20&7½ %
Spades, list ... dis 20&7½ %
Scoops, list ... dis 20&7½ %

For Net Bottom Prices see Page Adv. *Iron Age*, September 3d.

BROUGHTON'S
BURGLAR-PROOF SASH LOCKS.
(Patented Oct. 7th, 1879.)
FOR NET BOTTOM PRICES SEE PAGE AD. IN IRON AGE JUNE 26.



No. 210, Ornamental Iron, Iron Knob, fine finish, Etruscan Bronze.....$0.60
No. 211, Ornamental Iron, Iron Knob, fine finish, Olympian Bronze.....75
No. 212, Ornamental Iron, Iron Knob, fine finish, Pompeii Bronze.....85
No. 213, Ornamental Iron, Iron Knob, Nickel-plated.....1.25
No. 214, Ornamental Iron, Iron Knob, Nickel-Plated Rich Old Gold Inlaid.....1.50
No. 215, Ornamental Iron, Iron Knob, Nickel-plated, Pale Old Gold Inlaid.....1 60
No. 216, Ornamental Iron, Iron Knob, Nickel-plated, Fire Old Gold Inlaid.....1 75
No. 217, Ornamental Iron, Iron Knob, Nickel-plated, Crimson Old Gold Inlaid.....1.85
No. 218, Ornamental Iron, Iron Knob, Nickel-plated, Blue Old Gold Inlaid.....1.90
No. 219, Ornamental Iron, Iron Knob, Nickel-plated, Green Old Gold Inlaid.....1.95
No. 220, Ornamental Iron, Iron Knob, Nickel-plated, Copper Old Gold Inlaid.....2.00
No. 221, Ornamental Iron, Iron Knob, Nickel-plated, Lemon Old Gold Inlaid.....2 05
No. 222, Ornamental Cast Brass, Polished and Lacquered.....2.65
No. 224, Ornamental Cast Brass, Nickel-plated.....3 60

MANHATTAN HARDWARE CO.,
READING, PA., U. S. A.,
MANUFACTURERS OF
LOCKS Of Every Description,
AND A FULL LINE OF
GENERAL BUILDERS' HARDWARE.

Special net prices to be found in *Iron Age* whenever changes occur.
The only manufacturers in the United States who quote bottom prices to all dealers without favoring any class
Fine Gray Iron Castings of every description, also Real Bronze and Brass Castings, made to order at very low prices; Pattern Making, Japanning, Bronzing, Tinning, &c.
Our goods are known and liked wherever sold.
Orders received will be filled at last prices quoted in *The Iron Age*.
We do no underhand business, but quote alike to all for quantities less than $1000.
Our terms are strictly 15 days, f. o. b. Reading, no charge for cases or cartage.

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JAMES OSTRANDER & SON,
MANUFACTURERS OF
Best Quality Fire Brick, Blast Furnace Linings, Tiles of All Kinds, &c., &c.
IN OUR NEW
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We make Brick for Stove Linings which are not excelled by any on the market in Quality, Appearance or Accuracy of Fit.

We do not apply to these goods any high-sounding name, but do claim that a trial of them will prove to any Stove Manufacturer in want of a really first-class article that our claims are supported by facts and will be borne out in actual results.

Our reputation gained in our business career is a guarantee of the superiority of the goods which our new department is putting on the market.

Correspondence solicited. ☞ See also page 54.

UNION BRIDGE COMPANY.

Charles Kellogg. Thos. C. Clarke. C. S. Maurice. Geo. S. Field. Edmund Hayes. C. Macdonald.
CIVIL ENGINEERS
And Constructors of Iron and Steel Bridges, Viaducts, Roofs, Elevated Railroads, Marine Piers, Etc.

Works: Athens, Pa. (Late Kellogg & Maurice.) Capacity, 14,000 tons.
Works: Buffalo, N. Y. (Late Central Bridge Works.) Capacity, 12,000 tons.

DESIGNS AND ESTIMATES WILL BE SENT ON APPLICATION TO
UNION BRIDGE COMPANY, 18 Broadway, New York.

Steel Door Hangers
FOR EVERY PURPOSE.

Anti-friction Steel Barn Door Hangers.
Three sizes of Steel Common Hangers.
Anti-friction Steel House Door Hangers.
Heavy and Extra Heavy Anti friction Hangers for Warehouses, Freight Depots, &c.
Anti-friction Steel Elevator Hangers for Iron or Wooden Doors.
Special shapes and sizes of Hangers made to order.
All Hangers made for either Iron or Wood Track.
Wrought-Iron, Lock-Joint, Round-Edge Hanger Track in any desired lengths and sizes.
Track Brackets, Stay Rollers, Combination Latches, Automatic Gate Hinges.
The most complete and finest line of these goods manufactured.
Prices the lowest. Catalogues and Lists on application.

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☞ **THE BEST IS THE CHEAPEST.** ☜
THE BRUSH-SWAN ELECTRIC LIGHT CO.,
W. L. STRONG, *President*. A. D. JUILLIARD, *Vice-President*. C. P. WHITNEY, *Secretary*.
R. W. ADAMS, *Treasurer*. JOHN B. POWELL, *Gen'l Manager*.
REMOVED to Nos. 204, 206, 208, 210 Elizabeth Street, New York,
Where Electric Apparatus for all the various modes of lighting and transmitting of Power are in operation. **No other** system is as **economical** in Installation and Maintenance. **No other** Electric Light is as **durable**—the first machines made are still in daily operation.

The System Comprises
- Arc Lights of various sizes.
- Arc and Incandescent Lights from one Dynamo and Circuit.
- Incandescent Lights of various sizes from special Dynamo for Central Station Lighting.

Cost of Apparatus greatly reduced. *Surveys and Estimates by experts.*

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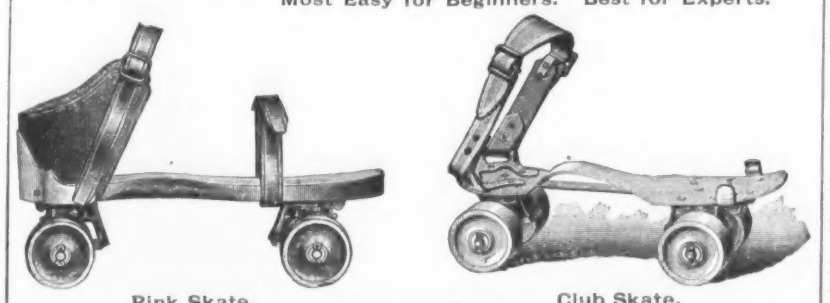
SOMETHING NEW.
Ball Bearing and Ratchet Movement.
Most Easy for Beginners. Best for Experts.



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MANUFACTURED BY
EUREKA SKATE CO., Richmond, Ind.
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Ice Cutting Machine.

We are aware that there are imperfect imitations of our machine in the market, and would ask your especial attention to the fact that the practical value of any Ice Machine consists in the **curved or off-set teeth,** through which the ice will readily pass by its own weight. This feature is fully protected by our letters patent, and cannot be used in any other machine.

GEO. H. MOSEMAN & CO.
Sole Agents,
28 CLIFF ST., NEW YORK.

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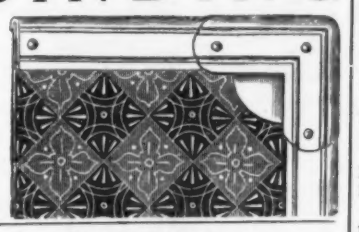
FOR
Oil Cloths, Carpeting &c.
OUR BINDING IS THE
BEST in the WORLD.



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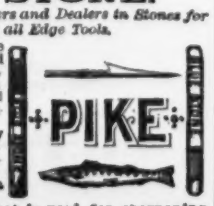
Reliable Agents Wanted.
J. T. GILMORE & SON, Painesville, Ohio.

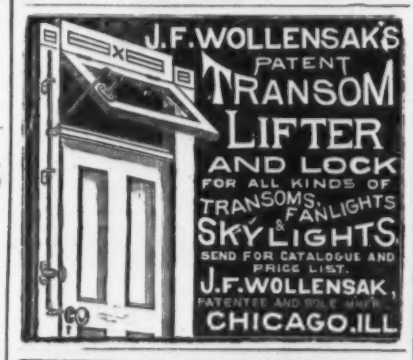
Dog Collars,
Dog Muzzles,
Dog Whips,
Dog Combs,
Dog Brushes,
Dog Bells,
Dog Couplings,
And all Styles of Dog Furnishings.
Send for Catalogue and Discount Sheet.
MEDFORD FANCY GOODS CO.,
101 Chambers St., New York.
I. BREMER, Gen'l Manager.

A. F. PIKE MFG. CO.,
Pike Station, New Hampshire, U. S. A.
Cable Address, "Pike, Haverhill."
MANUFACTURERS AND WHOLESALE DEALERS IN
BLUE STONE.
The Largest Manufacturers and Dealers in Stones for Sharpening all Edge Tools.

Pike's celebrated Blue Stone, Indian Pond (Red End), Lamoille, Black Diamond, Magic, Green Mountain. All kinds branded with our name are genuine.
Also, Oil, Water and Dry Whetstones; Arkansas Washita, Turkey, Hindostan and Sandstone Razor Hones, Vienna Cigar-shape.



In fact, everything that is used for sharpening Edge Tools supplied in any grit or shape required. Quality and Prices guaranteed. Send in your orders.



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EMPIRE PORTABLE FORGE CO.,
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READY ADDRESSED
ENVELOPES
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ALL LINES OF TRADE
16 CALHOUN PLACE
119 CLARK STREET CHICAGO, ILL.

MALLEABLE CASTINGS,
New Process. Air Furnace.
JAMES L. HAVEN & CO.,
CINCINNATI, OHIO.

BOSTON.
Reported by Bigelow & Dowse.

Anvil & Vise.—
	10	20	30	40	
Cheney	$3.50	4.50	5.50	6.50	dis 25 %

Eagle, Fisher & Norris, No. 00, $1.75; 0, $2.25; 1, $2.75; 2, $3.25; 3, $4.00; 4, $4.50; 5, $5.25; 6, $6.00; 7, $6.50; 8, $7.25; 9, $8.25.
100 ℔ and over 10¢ ℔.....dis. 20 %

Augers & Bitts.—
L'Hommedieu's Ship Auger.....dis 15 %
Jenning's Bitts.....dis 25 %
Cook's Bitts.....dis 50 %
Shepardson's Double-Cut Bitts.....dis 45 %
Shepardson's Double Gimlets.....dis 40 %
Stearn's Extension Hollow Augers—
No. 2, ₱ doz., $48; No. 3, ₱ doz., $60 list.....dis 20 %
Bonney's Extension Hollow Augers.....₱ doz $36.00
Pierce's Bitts.....dis 50 %
Griswold Bitts.....dis 60&10 %

Axes.—Blue Jackets.....₱ doz $7.50
Dowse Handled Boys'.....dis 35 %

Ax Handles.—
Oak Extra, 31 in., No. A.....₱ doz $2.50
Oak Extra, 34 in., No. A.....₱ doz 2.50
Oak Extra, 31 in., No. B.....₱ doz 2.00
Oak Extra, 34 in., No. B.....₱ doz 2.00
Oak Extra, 31 or 34 in., No. C.....₱ doz 1.40

Axle Clips.....dis 50 %
Balances.—Chatillon's.....dis 40 %
Barn Door Rail.—
Cast Angle (for Anti-Friction Hangers).....₱ ft., 2¢
Cast Half Round.....₱ ft., ⅜, 2½¢; ½, 3¢
Wrought Round.....₱ ft., ⅜, 3¢; ½, 4¢; ¾, 5¢
Bells.—Connel's Crank Gong, reduced list..dis 20&10 %
Bird Cages.
Japanned M. B. & D., reduced list, 1879.....dis 40 %
Brass M. B. & D. reduced list, 1879.....dis 33⅓ %
Blind Fasts.
No. 6 Fasts.....₱ C sets 6.00
Veazie Fasts.....₱ C sets 6.00
Shedd's.....₱ C sets 6.50
Blind Hinges.—Mall Hook, 3 holes..₱ C sets 7.00
Blocks.—Tackle.....dis 20 %
Brad Awl Handles.—
Phœnix Adjustable.....₱ doz $2.00
Bolts.—Norway Iron Carriage.....dis 75 %
Common Carriage, new list.....dis 75&10 %
Eagle Carriage.....dis 75 %
Borax.—Refined.....₱ ℔ 12¢
Boring Machines.—
Eagle Upright, each.....$5.50 list } dis 50 %
Eagle Angle, each.....6.75 list }
Braces.—Barber's.....dis 40&5 %
Spofford's.....dis 50&5 %
Backus's.....dis 50&5 %
Bracket Saws.—Holly Scroll Saw.....each $2.25
Bracket Saws, extra quality, to No. 3.....₱ gro. 0.75
Steel Frame, with patterns.....₱ doz 6.00
Lester.....dis 20 %
New Rogers, all iron.....dis 25 %
Bracket Saw Blades.—Griffith's pat., ₱ gross 75¢
Brackets.—
P. S. & W. Flower Pot, reduced list.....dis 40&10 %
Bronzed Shelf M. B. & D., new list.....dis 50&10 %
Store Shelf.....dis 40&10 %
Butts.—Union Fast Joint.....dis 60&10 %
Union Loose Joints.....dis 70&10 %
Union Japanned Acorn.....dis 70&10 %
Union Silvered Acorn.....dis 70&10 %
Union Boston Finish.....dis 70&10 %
Union Spiral Spring.....dis 25&10 %
Wrought Brass.....dis 70 %
Carriage Bolts.—Eagle Norway.....dis 75 %
Common, new list.....dis 75&10 %
Carriage Jacks.—Climax No. 1.....₱ doz $30.00
Climax No. 1½.....₱ doz 15.00
Climax No. 2.....₱ doz 13.50
Universal.....dis 25 %
Universal No. 1.....each $2.00
Universal No. 2.....each 3.00
Universal No. 3.....each 6.00
Universal No. 4.....each 6.00
Universal No. 5.....each 6.50
Cartridges.—U. S. Cartridge Co.....dis 60&10 %
Cards
Watson's make Horse & Curry....dis 10 %
Watson's Cotton.....dis 10 %
Watson's Wool.....dis 10 %
} Rev. List, Aug., 1883.
Casters.—Bed and Table.....dis 50&10 %
Chain.
Coil 3-16.....₱ ℔ 9¢
Coil ¼.....₱ ℔ 7¢
Coil 5-16.....₱ ℔ 6¢
Coil ⅜.....₱ ℔ 5¢
Coil 7-16.....₱ ℔ 5¢
Coil ½.....₱ ℔ 5¢
Chalk.—White, Carpenter's.....₱ gross 60¢
Red, Carpenter's.....₱ gross 80¢
Blue, Carpenter's.....₱ gross $1.00
Crayons.....12¢
Chisels.—Peck, Stow & Wilcox.....dis 70&10 %
Underhill, Framing.....dis 35 %
Buck's Chisels.....dis 30 %
Coal Hods.—"Dover."—Galv'd, New List.....dis 60 %
Japanned, New List.....dis 60 %
Cocks.—Brass. L. F. & Co.....dis 50&10 %
Coffee Mills.—New List.....dis 40 %
Copper Rivets.—.....dis 50 %
Cordage.—Manila, usual trade dis 1¢.....₱ ℔ 14½¢
Jute.....₱ ℔ 7¢
Cow Ties......dis 50 %
No. 30 3 ft. No. 6 Wire, with toggle.....₱ doz $3.80
No. 35, 3 ft. No. 6 Wire, with snap.....₱ doz 4.00
No 40, 3½ ft. No. 6 Wire, with toggle.....₱ doz 4.30
No. 45, 3½ ft. No. 6 Wire, with snap.....₱ doz 4.50
No. 50, 4 ft. No. 4 Wire, with toggle.....₱ doz 4.75
No. 55, 4 ft. No. 4 Wire, with snap.....₱ doz 5.00
No. 60, 4½ ft. No. 3 Wire, with toggle.....₱ doz 5.60
No. 65, 4½ ft. No. 3 Wire, with snap.....₱ doz 5.80
Crow Bars.—Cast Steel.....₱ ℔ 6¢
Cutlery.—Pocket American Shear Co.'s.....dis 40 %
Butcher Knives, Wood's, Lap Bolster, Square Handle.....dis 40
Steak Knives.....dis 40 %
Lap Bolster, Oval Handle.....dis 40 %
Sticking.....dis 40 %
Skinning.....dis 40 %
Butcher, Common Round Handle, Wood's.....dis 40 %
Shoe Knives, Wood's.....dis 30 %
Dividers.—Cook's.....dis 25 %
Dog Collars......dis 20 %
Door Springs.—Torrey Rod.....₱ doz $1.62
Imitation Torrey's Rod.....₱ doz 1.45
Gem Coil, new list.....dis 50&10 %
Crown.....₱ doz $1.2
Warner's.....₱ doz 1.75
Door Stops.—Thurston's.....dis 50 %
Drawer Knobs.—Thurston's.....dis 50 %
Drills.—Morse Bitt Stock.....} dis 40 %
Morse Straight Shank.....}
Emery.—Wellington Mills.....₱ ℔ 10¢
Walpole Emery Mills.....₱ ℔ 5¢
Turkish, in 10 ℔ cans.....₱ ℔ 7¢
Enameled Ware.—
Standard Mfg. Co. Kettles.....dis 60 %
Standard Sauce Pans.....dis 30 %
Felloe Plates.—Wrought.....₱ ℔ ¢
Files.—American File Co.....dis 60 %
Nicholson File Co.....dis 60 %
Fluting Machines.—Knox List, $4.00.....dis 25 %
Forks.—W. C. & Co.....dis 60 %
Eastern Tool Co.'s. Manure.....dis 60 %
Gimlet Bits.—
Genuine German, No. 125, 1-32 to 8-32.....₱ doz $1.00
Pierce's.....₱ doz .88
Glass Cutters.—Combination Glass Cutter and Knife Sharpener.....₱ doz $1.00
Grub Hoes.—K. P. & Co.'s No. 2, $11.50 ₱ doz. dis 50 & 10 %
Hammers.—Maydole's.....dis 15 %
Hartford Hammer Co.....dis 20 %
Hangers & Rollers.—Anti-Friction.....dis 50 %
Acme Rollers.....dis 50 %
Climax.....dis 50 %
Common Hangers.....dis 50&10 %
Common Rollers.....dis 50&10 %
Victor Hangers.....dis 50 %
Victor Rail.....dis 50 %
Hand Screws......dis 10 %
Hatchets.—C. F. Dowse, new list.....dis 35 %
Underhill.....dis 35 %
Hay Knives.—Lightning.....₱ doz $18.00, net
Hinges.—Strap and T (new list).....dis 65&10 %
Providence Plate.....₱ ℔ 5¢
Wrought Screw Hook.....₱ ℔ 5¢
Hoes.—Eastern Tool Co.....dis 60&10 %
W. C. & Co.'s.....dis 60 %
Hooks and Staples.—Brewers (new list)...dis 70 %
Horse Nails......

No.	6	7	8	9	
Putnam Pointed	.24	.22	.21	.20	.....5&7 %
Bridgewater	.23	.21	.20	19.	.....5 %

Ice Cream Freezers.—Packer's, new list.dis 50&10 %
Knobs.—"Norwalk." New list.....dis 66⅔ %
Silver Glass.....dis 50&10
Silver Glass Bell Pulls.....dis 50&10
Lanterns.—Tubulars, No. 0.....doz 47.50
Lawn Mowers.
Continental.....
Quaker City.....
National.....
Lead.—Sheet.....₱ ℔ 7¢
Pipe.....₱ ℔ 6½¢
Locks.—Norwalk.....dis 66⅔ %
Eagle Cabinet.....dis 40 %
Eagle Trunk.....dis 15 %
Mallory, Wheeler & Co.....dis 66⅔ %
Manure Forks.—W. C. & Co.....dis 60 %
Eastern Tool Co.'s.....dis 60 %
Mattocks.
K. P. & Co., Long Cutter, $16.00 ₱ doz....dis 50 & 10 %
K. P. & Co., Short Cutter, $15.50 ₱ doz...dis 50 & 10 %
K. P. & Co., Pick Cutter, $16.00 ₱ doz....dis 50 & 10 %
Measuring Tapes.—Eddy's.....dis 20 %
Meat Cutters.—Miles' Challenge.....dis 30 %
Hale's (new list).....dis 40&10 %
American.....dis 33⅓ %
Money Drawers.—Tucker's Alarm....₱ doz $22.50
Mouse Traps.—Delusion.....₱ doz 1.25
Novelty.....₱ doz
Nails......₱ keg
Oilers.—Zinc and Tin.....dis 60 %
Brass and Copper.....dis 50 %
Ox Bows.—Extra finished and varnished.....dis 15 %
1¼ in., ₱ doz. pair...$7.00 | 2 in., ₱ doz. pair..$10.00
1½ in., ₱ doz. pair... 9.00 | 2½ in., ₱ doz. pair.. 12.00
Paper.—Common Tarred Sheathing.....₱ ℔ 1½¢
Eagle Brand Tarred Sheathing.....₱ ℔ 2¢
Common, Dry Sheathing.....₱ ℔ 1½¢
Eagle Brand Dry Sheathing.....₱ ℔ 2½¢
Picks.—K. P. & Co., Adze Eye, 5 to 6 ℔ $12.00. dis 50 & 10 %
K. P. & Co., Adze Eye, 6 to 7 ℔ $13.00.....dis 50 & 10 %
Planes.
Auburn Tool Co., Bench.....dis 20 %
Auburn Tool Co., Fancy.....dis 15 %
Auburn Tool Co., English Iron.....dis 15 %
N. Y. Tool Co., Bench.....dis 25 %
Plated Ware.—Rogers & Bro.....dis 50 %
Pliers.—Vom Cleff & Co.'s.....net list
Button's Wire Pliers.....dis 33⅓ %
Plumb & Levels.—Stanley R. & L. Co..dis 70&10 %
Potato Diggers.—W. C. & Co., reduced list.
Eastern Tool Co.'s.....dis 60 %
Pulleys.—Acme or Excelsior, 1⅝ in.....₱ doz 22¢
Acme or Excelsior, 2 in.....₱ doz 24¢
Pumps.—Union Manufactoring Co.
Iron Cistern.....dis 50 %
Iron Pitcher Spout.....dis 60 %
Copper.....dis 30 %
Rivets.—In 5 ℔ papers.....dis 45 %
Burrs.....dis 50 %
Copper.....dis 50 %
Razors.—Torrey's.....dis 20 %
Rules.—Stanley, Boxwood.....dis 75&10 %
Stanley, Ivory.....dis 50&10 %
Sad Irons.—Common.....₱ ℔ 3¢
Laundry.....₱ ℔ 6¼¢
Tailors' Geese.....₱ ℔ 6¢
Enterprise "Potts'".....dis 35 %
Sash Locks.—King & Hutchinson's, new list.dis 40 %
Sandpaper.—Baeder & Adamson.....dis 40 %
Sash Weights.—Patent Eye.....₱ ℔ 1¼¢
Saws.—Hand Saws, Disston's.....dis 20 %
Cross-Cut Saws.
Disston's, Common Tooth.....₱ foot 68¢, dis 45 %
Disston's Great American Tooth..₱ foot 68¢, dis 45 %
Boynton's Lightning Tooth.....₱ foot 45¢
M. B. & D., Hand Saws.....dis 33⅓ %
Richardson Bros.....dis 25 %
Saw Blades.—Disston.....dis 20 %
Welch & Griffith, Extra.....₱ doz $7.20
Welch & Griffith, No. 2.....₱ doz 6.00
Scales.—Fairbanks.....dis 20 %
Screws.
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Flat-Head Brass.....new list, dis 85 %
Round-Head Brass.....new list, dis 85⅔ %
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Grilley Round-Head Nickel-Plated Common..dis 60 %
Scythes.—Clippers, in boxes.....₱ doz $6.00
Shaves.—Kimball's.....₱ inch 7½¢
Watrous.....dis 20 %
Shears.—American Shear Co., new list.....dis 70 %
Shot.—Tatham's.....₱ ℔ 6¢
Shovels.—O. Ames, new list.....dis 20 %
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Sinks.—Magee Patent.....dis 30 %
Snow Shovels......$3.75
Skates.—Union.....dis 40 %
Union Roller.....dis 20 %
Stocks and Dies.—King's.....dis 10&5 %
Tacks.
Swedes Tinned.....dis 60&10 %
Swedes Iron.....dis 60&10 %
Gimp and Lace.....dis 60&10 %
Copper Tacks.....dis 55 %
Traps.—Oneida, Genuine.....dis 33⅓ %
Oneida, Imitation, H. & N.....dis 60 %
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Vises.—Simpson's Adjustable.....dis 25&5 %
Howard Vise Co.....dis 25 %
Prentiss'.....dis 20 %
Weather Strips.—Packer's.....₱ doz $4.50
Browne's Flexible Rubber.....dis 30 %
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Babcock's No. 4.....₱ gross 4.15
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Wire Fence.
Washburn Painted Barbed.....₱ ℔ 4½¢
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Wrenches.—A. G. Coe's.....dis 60 %
Girard Mfg. Co.....dis 60&10 %
Girard Agt.....dis 70&10 %
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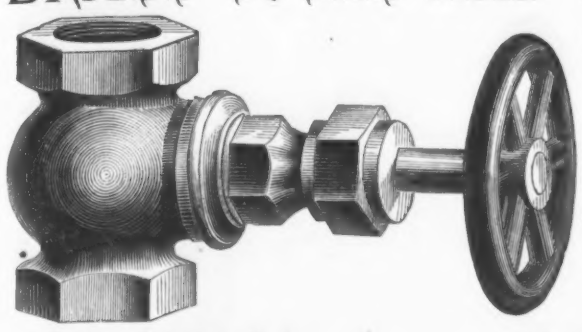

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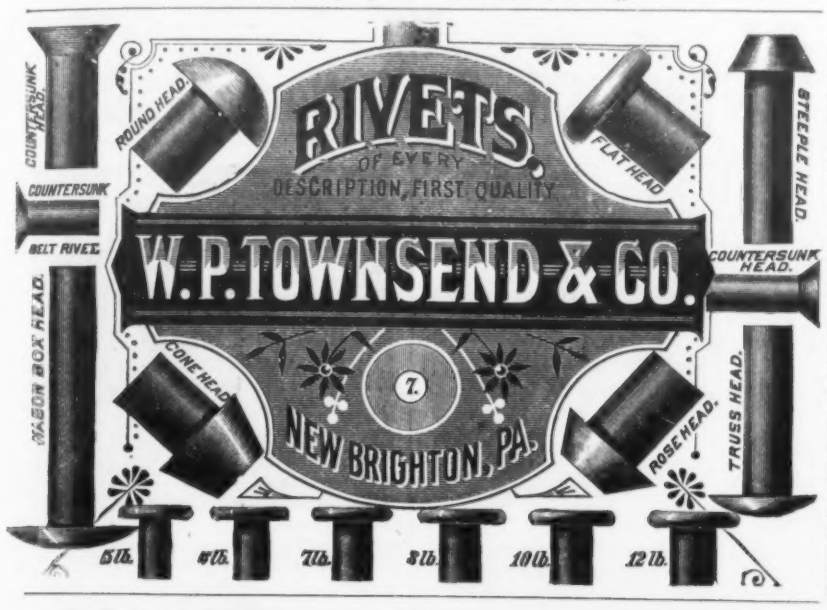

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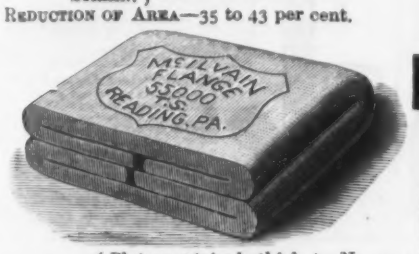

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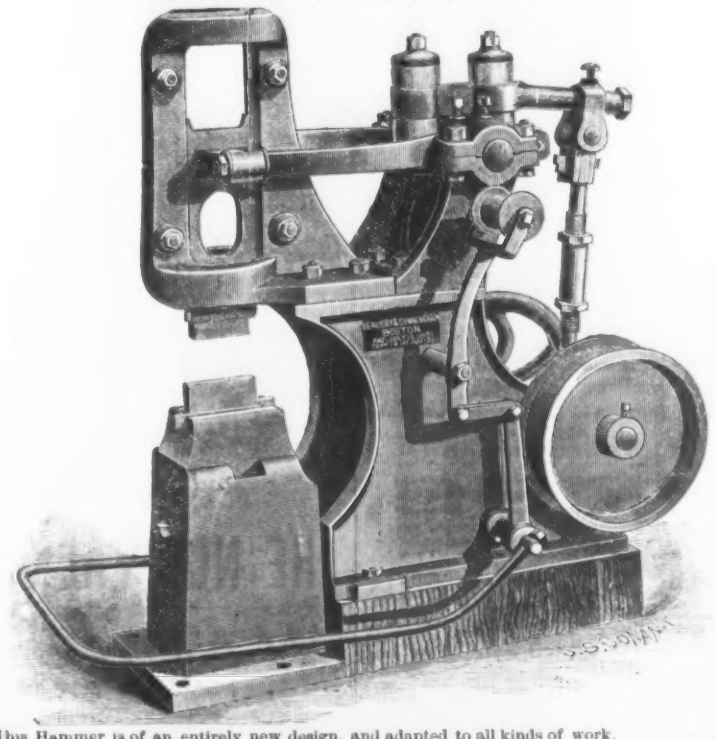

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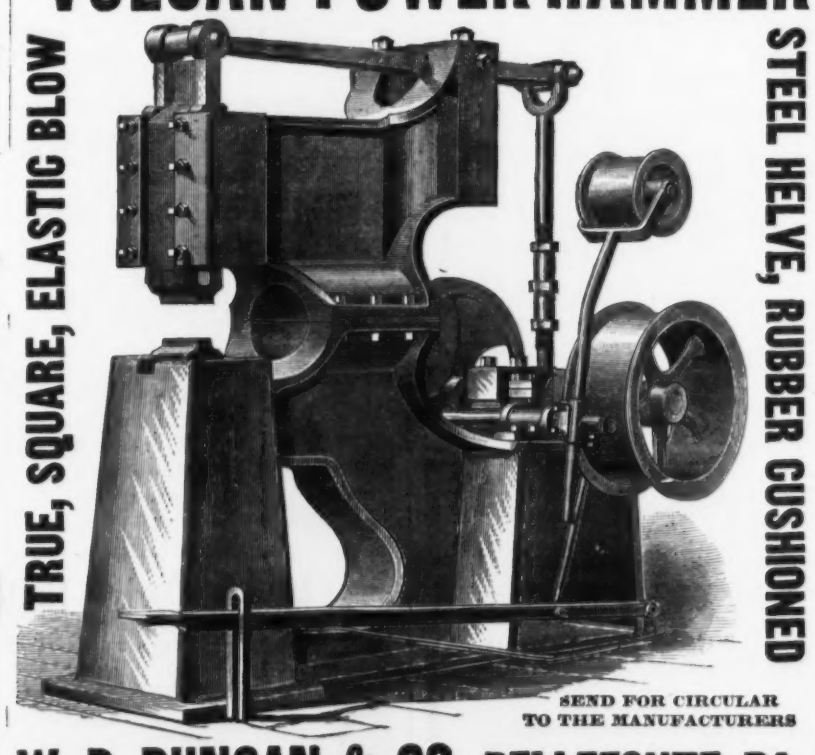

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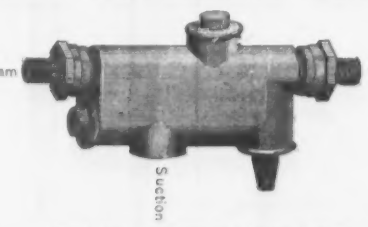

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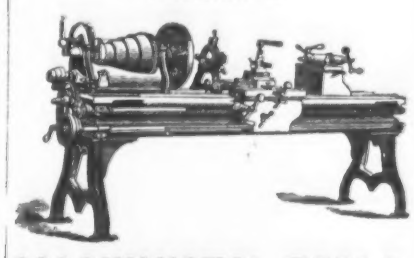

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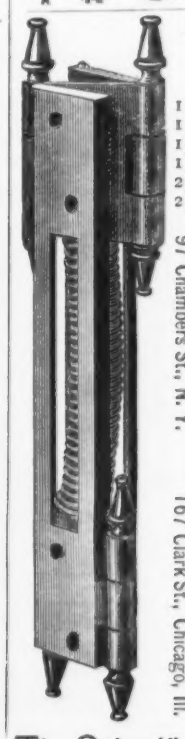

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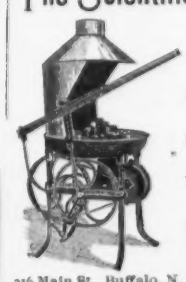

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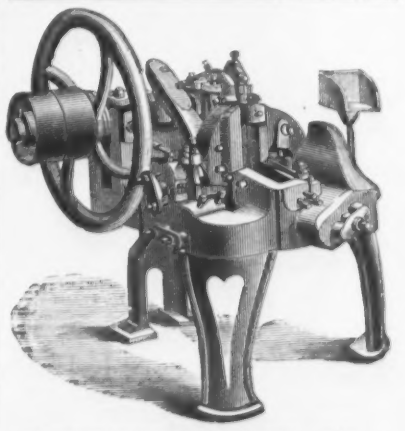

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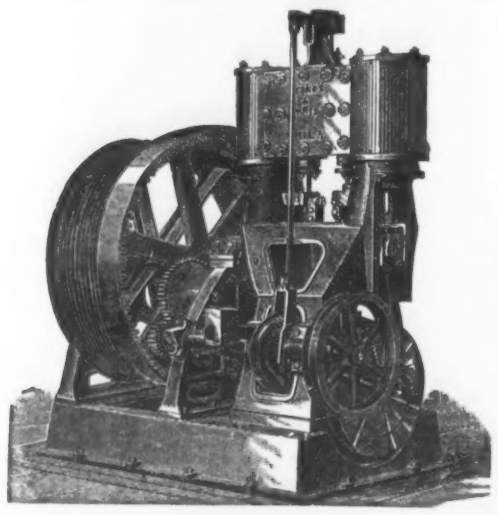

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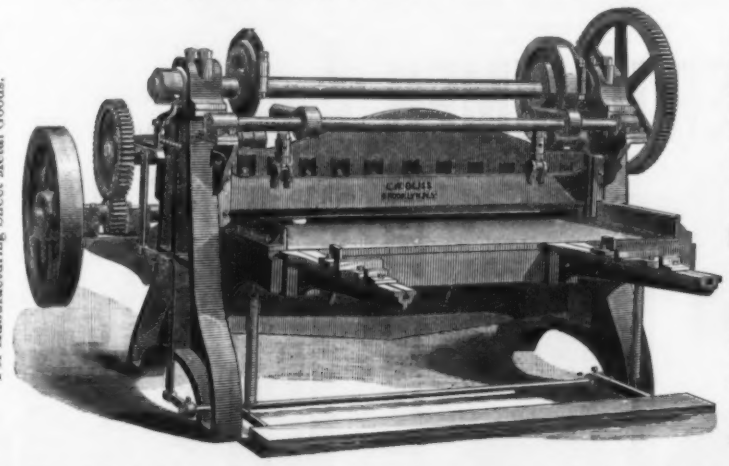

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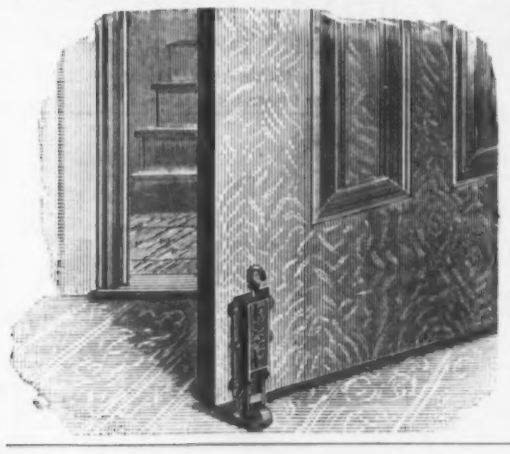

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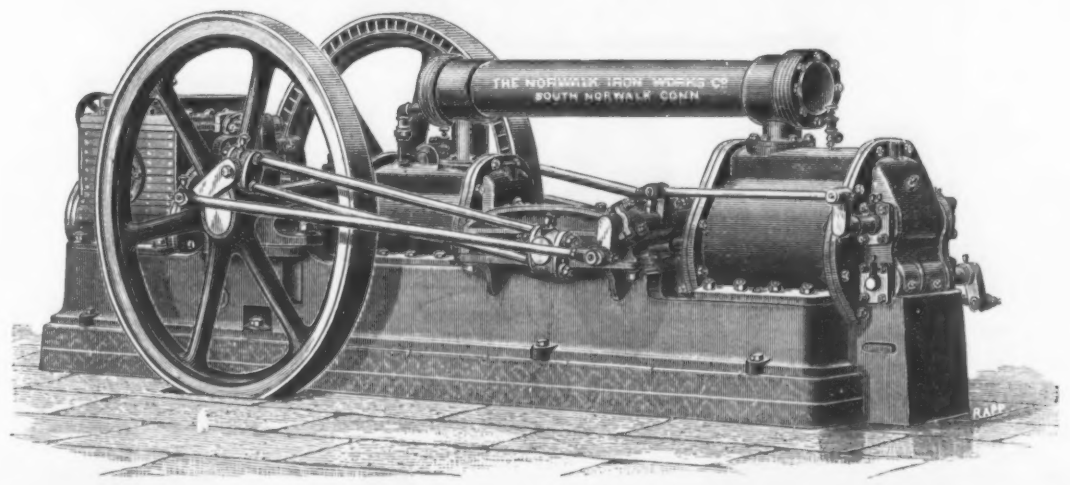

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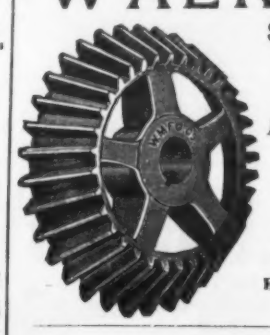

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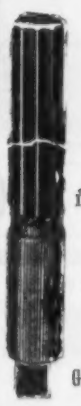

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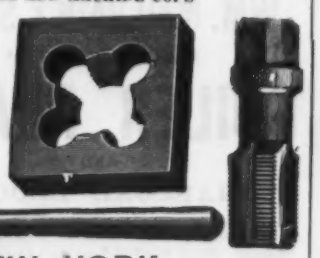

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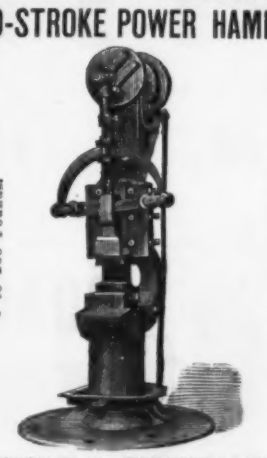

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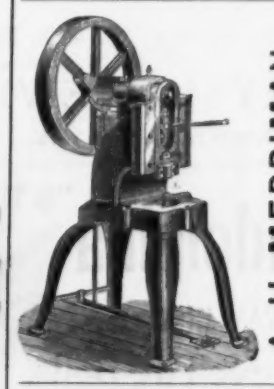

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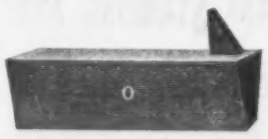

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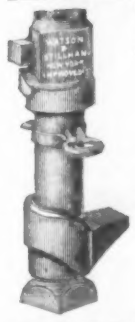

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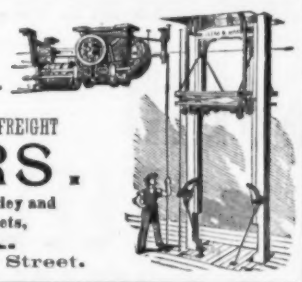

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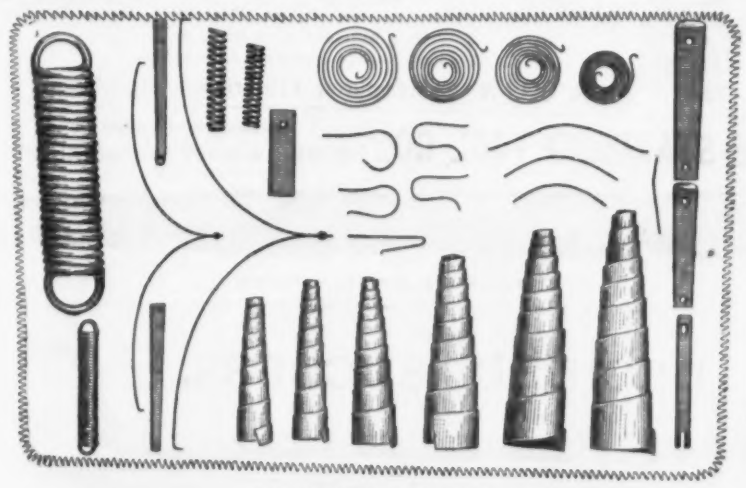

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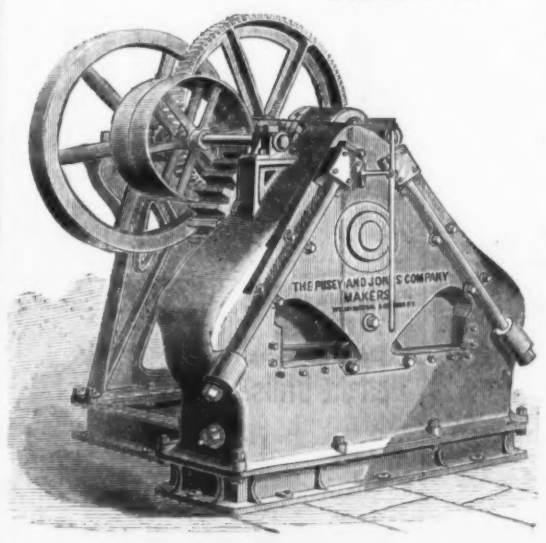

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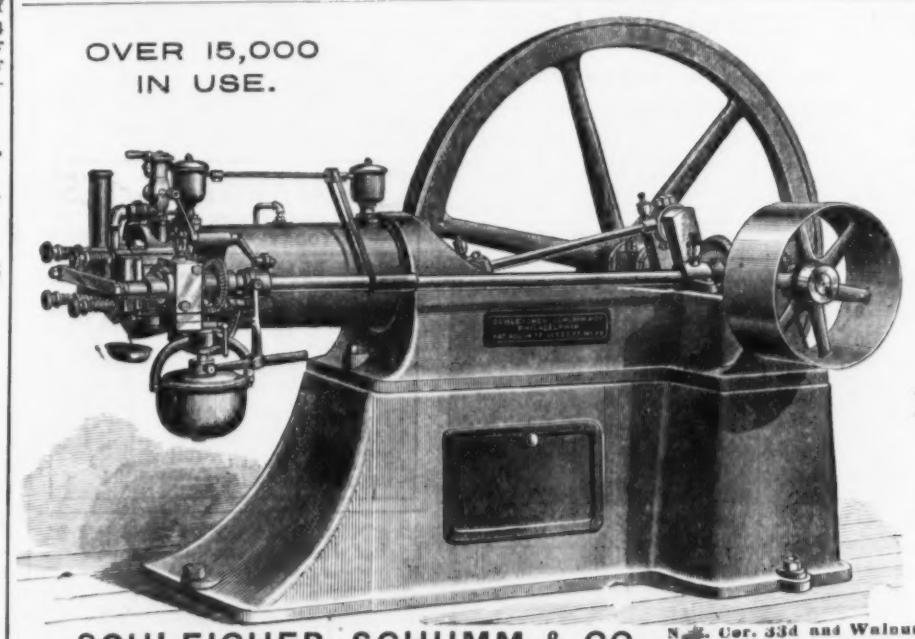

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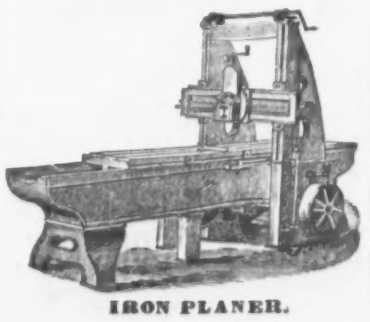

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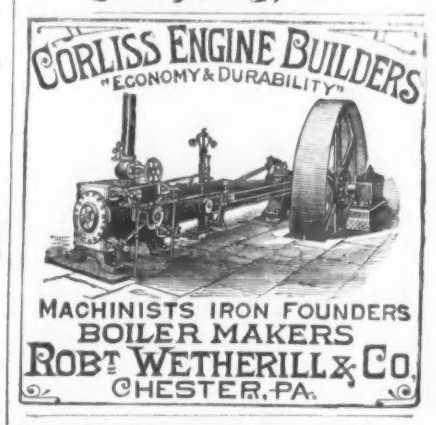

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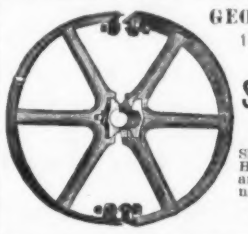

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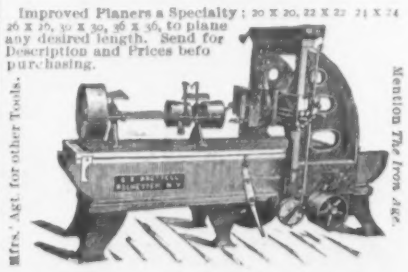

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